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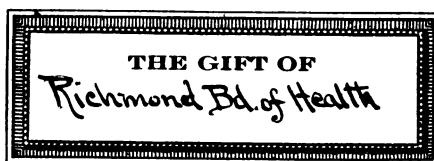
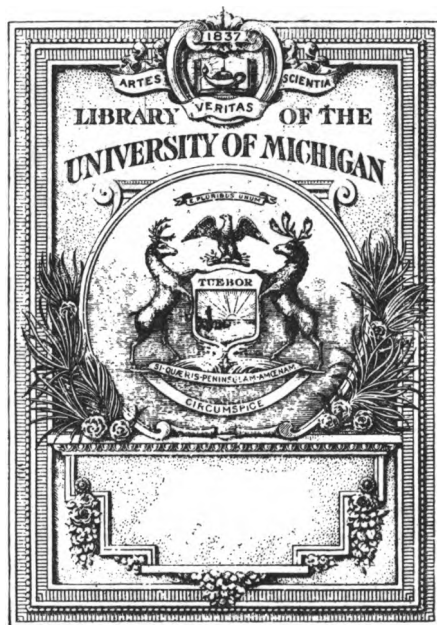
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REPORT
OF THE
HEALTH DEPARTMENT
CITY OF RICHMOND
1912,



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ANNUAL REPORT

OF THE

HEALTH DEPARTMENT

Compliments of

Board of Health

and

Dr. E. C. Levy

Chief Health Officer

PLEASE EXCHANGE

Year Ending December 31, 1912

RICHMOND:
CLYDE W. SAUNDERS, CITY PRINTER
1913

2000

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JAMES F. WALLER.

STENOGRAPHER.

MISS M. L. ELMORE.

RICHMOND, VA., *February 15, 1913.*

HONORABLE GEORGE AINSLIE,

Mayor of the City of Richmond.

SIR:

The Board of Health of the City of Richmond submits, as their report for the year ending December 31, 1912, the accompanying reports of the Chief Health Officer and his subordinate officers.

Very respectfully,

W. T. OPPENHIMER, M. D., President.

JAMES R. GORDON,

R. D. GARCIN, M. D.,

M. D. HOGE, JR., M. D.,

JAMES E. PHILLIPS, JR.

ANNUAL REPORT

REPORT OF THE CHIEF HEALTH OFFICER.

RICHMOND, VIRGINIA, February 15, 1913.

To the Honorable Board of Health of the City of Richmond.

GENTLEMEN:

I have the honor herewith to submit for your consideration the forty-first annual report of the Health Department of the City of Richmond. The general form of this report is the same as I have submitted in former years. It comprises (1) my seventh report as Chief Health Officer under the ordinance of June 18, 1906; (2) a financial statement of the appropriations, expenditures and reimbursements of the Department classified under the various accounts; (3) statistical tables, and (4) the reports of the other officers of the Health Department and of certain other officers of the city government, not officially connected with the Health Department, whose work, either in whole or in part, is performed for, or is closely related to, the work of our Department.

The crude death rate of our city was the lowest, with the exception of that for the year 1909, which we have had in any year since the reorganization of the Health Department, or, if deaths among nonresidents are excluded, it was the lowest without any exception whatsoever. This crude death rate for 1912 was 20.78 per 1,000, with nonresident decedents included, a reduction of .24 from the rate for the preceding year, the death rate for 1912 having been 21.02. The death rate with nonresidents excluded was 18.56, a reduction of .40 from the death rate of 1911.

The following table shows the crude death rate for the past six years with nonresidents included and excluded.

YEAR	NUMBER OF DEATHS			DEATH RATE PER 1,000 INHABITANTS		
	Non-residents included	Non-residents only	Non-residents excluded	Non-residents included	Non-residents only	Non-residents excluded
1907.....	2,652	155	2,497	23.38	1.87	22.02
1908.....	2,498	167	2,331	21.66	1.45	20.20
1909.....	2,404	219	2,185	20.99	1.88	18.81
1910.....	2,887	331	2,556	22.57	2.59	19.98
1911.....	2,718	267	2,415	21.02	2.06	18.96
1912.....	2,715	290	2,425	20.78	2.22	18.56

The year 1912 was a notable one in the work of the Richmond Health Department—in fact, our death rate from preventable diseases was almost phenomenally low. While in connection with certain preventable diseases, notably measles and whooping cough, the low rate was to a great extent due to the natural fluctuation which occurs from year to year, still the report which I am able to make cannot but convince even the most skeptical that this factor is but partly responsible, and that the direct work which has been done during the past six years is the main cause to which our low death rate from preventable diseases must be attributed.

The following table shows the annual death rate from certain important causes in the city of Richmond for the past six years, and also a comparison of the death rate from year to year, and a comparison of the death rate of the first of these years and the last.

Table Giving Death Rate from Certain Important Causes, in the City of Richmond, Virginia, for the Years 1907, 1908, 1909, 1910 1911 and 1912; the Average Annual Death Rate 1907-1912, Inclusive, and a Comparison of the Death Rate for These Years.

CAUSE OF DEATH	DEATH RATE PER 100,000						DECREASE IN DEATH RATE							
	Annual Average 1907 to 1912	1907						1907 to 1908	1908 to 1909	1909 to 1910	1910 to 1911	1911 to 1912	1907 to 1912	
		1907	1908	1909	1910	1911	1912							
Typhoid fever	28.6	41.4	49.7	24.1	21.9	17.8	16.8	*	8.3	25.6	2.3	4.1	1.0	24.6
Malarial fever	8.3	28.2	6.1	7.7	4.7	9.8	2.8	26.7	22.1	1.6	3.0	3.9	1.5	26.9
Measles	11.6	30.9	5.2	9.9	22.7	9.3	8	*21.8	26.7	4.8	*1.9	13.4	8.5	30.1
Scarlet fever	8	0.0	2.9	9.9	0.0	2.3	8		*	0.0		2.8	1.5	*
Whooping cough	20.4	2.6	28.7	11.2	36.7	39.6	8.8		26.1	17.5	25.5	35.7	86.7	1.2
Diphtheria	8.6	14.1	8.5	7.7	10.2	10.1	6.1		10.6	4.2	2.5	1	4.0	8.0
Dysentery	17.4	25.6	15.7	11.2	12.5	24.7	14.5		9.9	4.5	1.3	12.2	10.2	11.1
Influenza	25.2	41.4	33.1	12.9	25.8	20.1	18.1		8.3	20.2	12.9	5.7	2.0	23.8
Pneumonia (lobar or unqualified)	121.0	200.2	132.4	102.4	115.7	88.9	86.5		67.8	30.0	13.3	26.8	2.4	113.7
Bronchopneumonia	62.8	61.8	49.7	43.9	77.4	64.2	79.6		12.1	5.8	83.5	13.2	15.4	17.8
All diseases of the respiratory system (consumption not included)	283.3	401.2	294.5	249.6	233.8	225.9	244.9		106.7	44.9	34.2	67.9	19.0	166.8
Consumption	211.6	229.8	194.3	208.3	223.6	207.4	206.6		85.0	14.0	15.3	16.3	8	22.7
Other tubercular diseases	38.1	41.4	30.5	44.8	30.5	42.5	39.0		10.9	14.3	14.3	12.0	3.5	2.4
Cancer (of all organs)	91.2	70.5	73.2	79.2	86.2	87.4	91.8		2.7	6.0	6.0	2.2	4.4	21.3
Apoplexy	143.8	148.0	122.8	135.2	150.1	147.7	152.3		26.2	12.4	14.9	2.4	4.6	3.8
Organic heart disease	173.1	153.4	172.5	132.4	174.3	167.7	218.1		19.1	20.1	21.9	6.6	50.4	64.7
Bright's disease	150.8	112.9	139.4	133.4	181.0	167.7	176.0		28.5	6.0	47.6	19.3	14.3	63.1
Diarrhea (under two years)	129.2	142.0	122.0	126.5	132.1	151.6	101.0		20.0	4.5	5.6	19.5	60.6	11.0
Diarrhea (over two years)	31.4	49.4	32.2	32.7	24.6	101.0	25.2		17.3	*	6.1	4.2	2.8	24.2
Congenital debility	112.0	107.6	113.2	124.0	110.2	98.3	118.6		5.6	10.8	13.8	12.0	20.4	11.9
Suicide	12.6	13.2	11.3	7.7	9.4	20.1	13.8		1.9	3.6	1.7	10.7	6.3	2.8
Legal electrocution	00	104.9	88.9	109.3	123.0	113.7	124.0		16.0	20.4	12.7	9.4	3.1	5.1
Other violent deaths (nonsuicidal)	110.5	63.0	71.5	73.8	83.0	44.1	82.1		20.2	2.3	9.2	83.9	10.3	19.1
Cause of death ill-defined or unknown	66.0													59.6
Total deaths, all causes:	2,168	2,398	2,166	2,069	2,257	2,102	2,078		172	97	*188	155	24	260
Nonresidents included	1,976	2,202	2,020	1,881	1,998	1,896	1,866		182	139	*117	102	40	346
Nonresidents excluded														

*Increase.

†The first legal electrocution, under the Act of 1908, (by which all electrocutions, for crime committed in any part of the State, are conducted in Richmond) was in October, 1908. The annual average given is for five years—1908-1912.

All death rates in the above table are calculated from the official census of 1910 and the postcensal estimate of the United States Bureau of the Census for intercensal years.

Study of the above table brings out the most remarkable fact that the death rate from all acute contagious diseases has declined wonderfully during the period covered, while the death rate from those nonpreventable diseases which are regularly responsible for a very large proportion of all deaths occurring in Richmond has steadily increased.

It will be admitted that typhoid fever, malarial fever, measles, scarlet fever, whooping cough, diphtheria, dysentery, influenza, consumption, other tuberculous diseases, and infantile diarrhea are the most important preventable diseases at the present time. The death rate from these diseases collectively has declined from a rate of 597 per 100,000 in 1907 to a rate of 410 in 1912—a *decrease* of 187. On the other hand, cancer, apoplexy, heart disease, Bright's disease, congenital debility, suicide, legal electrocution and other violence are causes of death which are not regarded as preventable at the present time. The death rate from these latter causes collectively was 712 per 100,000 in 1907, and 900 in 1912, an *increase* of 188 per 100,000.

The above figures indicate that in order to show a decrease in our crude death rate from 1907 to 1912, we had to overcome a handicap of an increase of 188 per 100,000 (which is equivalent to 1.88 per 1,000) from diseases which we could not possibly control. By a remarkable coincidence, however, the decrease in our death rate which we were able to bring about in connection with the six preventable diseases mentioned at the beginning of the preceding paragraph offset this almost exactly—that is, as shown above, the death rate from these diseases decreased 187 per 100,000 (which is equivalent to a decrease of 1.87 per 1,000).

The figures just given are of unusual interest, showing as they do that the high death rate in Richmond is due almost entirely to the large number of deaths from diseases which are absolutely beyond the control of any health department. The increase in the population of Richmond is the result largely of steady growth and is not, as is the case with those cities showing a very low death rate, due to a large influx of healthy young adults, among whom very few deaths occur from the causes which are responsible for the majority of the deaths which occur in Richmond.

These considerations are sufficient to show how utterly misleading is any comparison between the crude death rates of cities. Such a comparison is, according to the highest authorities, valueless. The only comparison of any real value is one based in a study of special causes of death, and every comparison of this kind shows that Richmond has a very low death rate from all forms of disease which are regarded as preventable.

DEATHS FROM CONTAGIOUS DISEASES.

The most accurate measures of the actual accomplishments of a health department is the death rate from preventable diseases. In the present stage of knowledge, the causes which are responsible for the greater part of the deaths in Richmond are not preventable. Such causes as heart disease, Bright's disease, apoplexy, and cancer will be admitted by every one to be beyond the control of any public health department.

For the most part, diseases which are now classed as preventable are

those of a contagious and infectious nature. Our record for 1912, in connection with diseases of this class was in every way a remarkable one. As the different diseases in this class are discussed at length further on in this report, only a brief summary will be given at this point.

Typhoid fever. Our record in connection with this disease was again lowered, both as to the number of cases and the number of deaths, there having been only 208 cases and 22 deaths, against 251 cases and 23 deaths in 1911. The death rate for 1912 was 16.8 per 100,000, against 17.8 in 1911. The death rate from typhoid fever during the 26 years preceding reorganization of the Richmond Health Department in 1906 averaged 77.8 per 100,000. Our average death rate for the past 4 years has been 20.2 per 100,000. During the 6 full years following reorganization of the Health Department, in each year, with one exception, the death rate from typhoid fever has been lower than in the preceding year, and lower than in any year previously recorded.

Malarial fever. There were only 3 deaths attributed to malaria in 1912, which is the smallest number of deaths in any year on record, with the single exception of 1911, when we had only 1 death. The causes to which this result may be attributed are fully discussed further on. Our death rate from this disease in 1912 was 2.3 per 100,000.

Measles. The year 1912 was, as had been anticipated, an "off" year for measles, there having been only 1 death from this cause. Late in the year we began to have the epidemic which had been anticipated for the winter of 1912-1913, but which began much earlier than did the epidemics of 1907 and 1910.

Scarlet fever caused only 1 death in 1912, equivalent to a death rate of .8 per 100,000. There have been but 6 deaths from this disease in the past 6 years, giving an average death rate of .8 for this period, which is the lowest ever recorded for any similar period. The record in connection with scarlet fever in Richmond is a most remarkable one, the number of deaths having been so low for the past 26 years as to leave little room for improvement.

Diphtheria caused only 8 deaths in 1912, which is equivalent to a rate of 6.1 per 100,000. Only two years since 1875 have had a rate lower than this, and one of these years (1908) was since the reorganization of the Health Department.

Whooping cough. The year 1912 was an "off" year for this disease, there having been only 24 cases reported, with 5 deaths, equivalent to a death rate of 3.8 per 100,000, which is the lowest rate, with the exception of that for the year 1907, since the reorganization of the Health Department. Whooping cough is distinctly the most fatal of all contagious diseases of infancy and childhood in our city. The alternation of years of high and low mortality was the chief factor responsible for our low rate in 1912, since we have as yet no satisfactory way of controlling the spread of this disease.

Combined death rate from above causes. The six diseases above mentioned are everywhere recognized as constituting the chief acute contagious diseases with which departments of health have to deal. The death rate in Richmond last year from each of these diseases was remarkably low,

and the aggregate death rate from all six combined was only 30.6 per 100,000 inhabitants. The figures for these diseases throughout the "registration area" are not available for any year later than the year 1909. The following table gives the death rate from these six causes in Richmond for the year 1912, and the death rate from the same causes in the "registration area" for the year 1909.

CAUSE OF DEATH	Richmond, 1912	Registration Area, 1909	Cities in Non-Regis- tration States, 1909
Typhoid fever.....	16.8	21.1	27.4
Malarial fever.....	2.3	2.3	8.3
Measles.....	.8	9.6	6.6
Scarlet fever.....	.8	11.4	13.2
Whooping Cough.....	3.8	9.6	7.4
Diphtheria.....	6.1	20.4	23.4
Total.....	30.6	74.4	86.3

While the above table compares Richmond's 1912 death rate with the 1909 death rate in the whole "registration area" and in cities in non-registration States, nevertheless, the rates from these diseases do not vary greatly from year to year throughout the large area covered. We may, therefore, assume that the 1912 rate was not significantly different from the above figures. If we accept this, it is seen that, while Richmond had a death rate of only 30.6 per 100,000 from these six important causes, the rate from the same causes in the whole registration area was 74.4, and for cities in nonregistration States (the class of cities to which Richmond belongs) it was 86.3. While we do not claim special credit for our low rate in connection with measles and whooping cough, which was due to 1912 being an "off" year with us, and while scarlet fever has not had a high death rate in Richmond for many years, we feel justified in believing that the low rates from typhoid fever and diphtheria were the direct outcome of work done by this Department, and that the malaria rate was largely due to efforts which we have made in securing correct returns of causes of death.

Viewed in any way whatsoever, we cannot but feel gratified that six such important acute contagious diseases were collectively responsible for such a very low death rate.

Consumption was responsible for 270 deaths in 1912, which was equivalent to a death rate of 206.6 per 100,000. The number of deaths was 2 greater than in the preceding year, but, owing to the increase in population, the death rate was .8 per 100,000 lower than in the preceding year.

Infantile diarrhea. The record made in connection with this disease was remarkable, there having been only 132 deaths from this cause against 196 in 1911. The death rate for 1912 was 101.0 per 100,000, while the rate in 1911 was 132.1. We believe that a very large part of the decrease in the number of deaths from this disease was due to the direct work of this Department, which is discussed elsewhere in this report.

CHANGES IN THE FORCE.

There were several changes in the force during 1912, one new office was created and several salaries were raised.

On February 1, our clerk, Mr. E. T. Terrell, resigned and his place was filled by the election of Mr. R. B. Palmer.

On April 15, an ordinance went into effect creating the position of Chief Sanitary Officer. Mr. W. T. Tuck was elected to fill this office, entering upon his new duties on May 1. The practical effect of this was to give us an additional sanitary officer, since Mr. Tuck had been acting as Chief Sanitary Officer for over a year, though his salary up to the time that the position was officially created was the same as that of the other sanitary officers. The salary of the new position is \$1,200.00. Mr. Tuck has filled the new position admirably, showing the same energy, enthusiasm and ability as he did before the position was officially created.

The vacancy caused by the promotion of Mr. Tuck was filled by the election of Mr. John T. Gill, who had previously been one of our sanitary officers. It gives me pleasure to commend the work of the entire sanitary force. This force is utterly inadequate, however, to do all the work which should be done in our city, and we should have at least twice as many sanitary officers as we have at present.

On July 1, Dr. J. H. Crouch was elected by the City Council to succeed Dr. J. F. Hubbard, resigned.

On July 15, the salary of the Medical Inspector was increased from \$1,500.00 to \$2,000.00 by city ordinance. I have repeatedly referred in my annual reports to the very inadequate salary attached to this office. On account of this we have previously lost two most excellent men—Dr. A. W. Freeman, now Assistant Commissioner of Health of Virginia, and Dr. W. B. Foster, now Health Officer of Roanoke. While it is most gratifying to feel that we have taken men out of the practice of medicine and started them on the road to become useful, and even eminent, in public health work, nevertheless it has most seriously interfered with the efficiency of the Department to have to take in a new man to fill such an important position in place of one who has become thoroughly familiar with our own Department, and, beyond that, who has become so well grounded in the principles and practices of sanitary science. Although the increase in salary will help most decidedly in retaining good men in the future, still even the present salary is a meager one for a man such as we need for Medical Inspector, and no man who is doing such excellent work as our present Medical Inspector, Dr. C. C. Hudson, can long be held at a salary of \$2,000.00 a year.

Our head nurse, Miss Elisabeth Detwiler, who had been with the Department since the work for the prevention of infant mortality was started, in March, 1910, resigned in June. Not even the fact that her resignation was due to the belief of the Chief Health Officer that she would be even more valuable as his wife than as head nurse offers any legitimate reason why I should not speak of the excellence of her work while connected with the Health Department. Having been with the Department from the inception of the work for the prevention of infant mortality, every phase of it was thoroughly understood by her. Not only did she carry

out faithfully every policy, but our present methods of dealing with the problem are to a considerable degree due to her suggestions, which were based on her power of close observation and unusual ability in the analysis of difficult situations.

TYPHOID FEVER.

I am again able to report a decrease in our death rate from typhoid fever. During 1912 we had only 22 deaths from this disease, against 23 deaths in 1911. The death rate per 100,000 was 16.8, against 17.8 in 1911. Of the fatal cases, 6 were contracted outside of Richmond leaving 16 contracted in the city.

We feel especially gratified over this result, in view of the fact that there were 7 deaths from this disease in the month of September, that month closing with 19 deaths for the first nine months of the year, against 17 deaths for the same period in 1911. In October there were 3 deaths, against 2 in October, 1911, thus making a record of 22 deaths for the first ten months in 1912, against 19 deaths for the corresponding period in 1911. We were fortunate, however, in passing through November and December without a death, while there were 4 deaths in these months in 1911. Our year thus closed with 1 death less than the preceding year.

TYPHOID CASES.

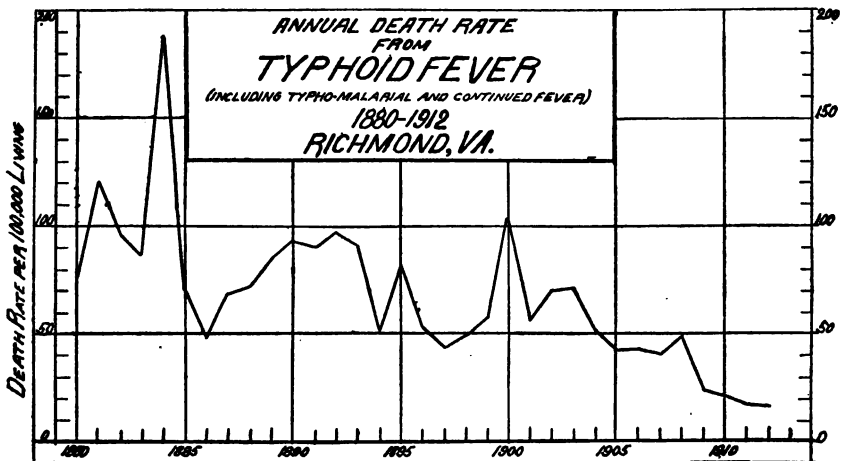
Not only in the number of deaths, but also in the number of cases, the year 1912 was ahead of all previous records. There were reported 208 cases, against 251 in 1911. In my last annual report I directed attention to the fact that on one day there was not a case of typhoid fever in the City of Richmond, and stated that I was confident that this was the first time on record. As a matter of fact, the case which was reported the following day had actually been ill on the day on which our records appeared clear. During 1912 there were two periods, one of about 7 days at the end of April, and the other of about 12 days during the first half of May, during which there was no case of typhoid fever in our city. Carrying this report a few days into the present year, there has been at this time (January 28, 1913) no case of typhoid fever reported in our city since December 11, 1912. Such figures as the above are entirely unprecedented in our city, and are naturally a source of gratification. The following table is given showing the typhoid fever record of Richmond for the past 33 years:

Table Showing Annual Number of Deaths from Typhoid Fever (Including "Typho-Malarial Fever" and "Continued Fever"), and the Annual Death-Rate per 100,000, Richmond, Virginia, 1880-1912.

YEAR	DEATHS FROM TYPHOID FEVER		YEAR	DEATHS FROM TYPHOID FEVER	
	Number of Deaths	Rate per 100,000		Number of Deaths	Rate per 100,000
1880.....	49	77.0	1885.....	69	82.9
1881.....	79	120.9	1886.....	45	53.8
1882.....	64	95.4	1887.....	37	44.1
1883.....	59	85.6	1888.....	42	49.9
1884.....	133	188.1	1889.....	49	57.9
1885.....	51	70.4	1890.....	88	108.3
1886.....	34	48.5	1901.....	49	56.6
1887.....	52	68.4	1902.....	63	71.6
1888.....	56	72.0	1903.....	64	71.7
1889.....	68	85.4	1904.....	47	51.8
1890.....	76	93.4	1905.....	40	43.5
1891.....	74	90.6	1906.....	41	43.9
1892.....	80	97.4	1907.....	47	41.4
1893.....	76	91.0	1908.....	57	49.7
1894.....	42	50.7	1909.....	28	24.1
			1910.....	28	21.9
			1911.....	24	17.8
			1912.....	22	16.8

All death rates are calculated from the official midyear population as given by the United States Bureau of the Census.

The death rates given in the above table are shown graphically in the following diagram:



The figures in the above table are combined in 5-year periods in the following table:

Period.	Average Annual Typhoid Death Rate per 100,000 Population.
1880-1884 (5 years)	113.4
1885-1889 (5 years)	68.9
1890-1894 (5 years)	84.6
1895-1899 (5 years)	57.7
1900-1904 (5 years)	71.0
1905-1909 (5 years)	40.5
1908-1912 (last 5 years)	26.1
1909-1912 (last 4 years)	20.2
1911-1912 (last 2 years)	17.3
1912 (last year)	16.8

The average annual death rate from typhoid fever for the 26 years (1889-1905) preceding the reorganization of the Health Department was 77.8 per 100,000, while the rate for the 6 full years since reorganization was 28.6. The year 1906 is not included in either of these periods, since it was equally divided between the old and the new organizations. Our death rate for the past 4 years (1909-1912) was 20.15 per 100,000.

During the 26 years preceding the reorganization of the Health Department, there were only 4 years in which the rate fell below 50. In none of these years was the rate greatly below 50, while in no year since organization has the rate been as high as 50. The lowest rate recorded in any year before reorganization was 43.5, while since reorganization 5 years out of the 6 have had rates lower than this, and our rate for the past 4 years has been below 25, and for the past 2 years it has been below 20.

As a matter of fact, the results which have been obtained in connection with typhoid fever are so remarkable that, no matter in what way the figures are stated, the contrast is most striking. It is especially gratifying to be able to show that in each year, with the single exception of 1908, the death rate from typhoid fever has been lower than in any previous year either before or since reorganization of the Department.

All the above statements are made in connection with figures which include every death during the year in which typhoid fever was stated on the death certificate as having been the cause of death. As a matter of fact, the showing which has been made is not fully brought out in this way. In the first place, as mentioned above, 6 of the fatal cases were contracted outside of the city. Taking into account only the 16 cases contracted in Richmond, our death rate was only 12.2 per 100,000. But out of these 16 cases, the diagnosis in 6 was exceedingly doubtful. If we confine ourselves to deaths among cases which were certainly typhoid fever and which were contracted in Richmond, there were only 10 deaths, giving a rate of 7.7 per 100,000. As in my last two annual reports, the number of deaths was so small as to make possible the giving of a brief history of every fatal case during the year. This is done in the following table:

Table Giving a Brief History of the Twenty-two (22) Deaths from Typhoid Fever in the City of Richmond, Virginia, During 1912, With Special Reference to (1) Where Disease was Contracted, (2) Whether Resident or Nonresident of Richmond, and (3) Whether Diagnosis was Positive or Doubtful.

CASES CONTRACTED IN CITY

1. (Resident) 4-29, white female, 11 yrs., died Jan. 5. History of previous attack of grip. Went to bed Dec. 27, with cough, bloody sputum and other symptoms of pneumonia. Died on 9th day of illness. Almost certainly not typhoid.
2. (Resident) 250 (1911 series)—137, colored female, 19 yrs., died Jan. 17 from intestinal hemorrhage after illness of 6 wks.
4. (Resident) 11-668, white male, 38 yrs., died March 23. Ill since March 14, with double pneumonia. Widals negative. Almost certainly not typhoid.
7. (Resident) 27-1325, white female, 15 yrs., died June 28. Two Widals negative. Doctor stated patient had acute nephritis and was not sure of typhoid. Diagnosis was extremely doubtful.
9. (Resident) 35-1385, white female, 19 yrs., died July 7.
10. (Resident) 87-1543, colored male, 8 yrs., died July 28.
11. (Resident) 37-1618, white female, 37 yrs., died Aug. 3. Perforation of intestine after illness of 52 days.
12. (Resident) 92-1725, white male, 21 yrs., died Aug. 13.
13. (Resident) 125-1846, white male, 17 yrs., died Aug. 18. Was out of city Aug. 3-10, and was taken ill Aug. 17. Carried as 50 per cent. probability of having been contracted in city; offset by No. 6.
14. (Resident) 108-1879, colored male, 23 yrs., died Sep. 8.
16. (Resident) 107-1931, white female, 70 yrs., died Sep. 15. Had severe diarrhea and very low and atypical temperature; two Widals negative. Diagnosis extremely doubtful.
17. (Resident) 159-1988, white female, 66 yrs., died Sep. 21. Took to bed Sep. 14, after slight chill; soon became unconscious. Had chronic nephritis some years. Doctor said this was real cause of death, but thought she probably had typhoid too.
18. (Resident) 168-2003, white female, 9 mos., died Sep. 23. In hospital from birth; ill 10 days with severe diarrhea. Doctor not sure whether summer diarrhea or typhoid, but being on same floor with other typhoid cases, thought typhoid probable. Widals negative.
19. (Resident) 163-2018, colored male, 23 yrs., died Sep. 25.
21. (Resident) 184-2184, white male, 28 yrs., died Oct. 17.
22. (Resident) 183-2187, colored female, 12 yrs., died October 18.

CASES CONTRACTED OUT OF CITY

3. (Nonresident) 2-151, white male, 34 yrs., died Jan. 18. Was ill on arrival in city.
5. (Nonresident) 19-1030, white male, 55 yrs., died May 12. Brought to city and operated on for abscess of liver following attack of typhoid in Dec., 1911.
6. (Nonresident) 13-1166, white female, 20 yrs., died June 2. Taken ill 10 days after arrival in city, on April 14; hence probably contracted out of city. Carried as probability of 75 per cent., offsetting No. 13.
8. (Resident) 45-1353, white female, 20 yrs., died July 2. Disease contracted while in Hampton, Va., two other persons in house where visiting having been taken ill at same time.
15. (Nonresident) 146-1895, white female, 22 yrs., died Sep. 11. Brought to city only a few hours before death.
20. (Resident) 196-2123, colored female, 21 yrs., died Oct. 10. Ill on arrival in city after having been in Petersburg one month.

(*Explanatory Note.*). The first figure preceding each case in the above table is the consecutive number of each of the 22 fatal cases of typhoid fever in Richmond during 1912, according to the date of death. The first part of the second (hyphenated) figure refers to the serial number of each case in the records which the Richmond Health Department keeps of all cases of typhoid fever in the city, while the second part of this figure is the registered number of the certificate of death in each case. These latter figures are given for our own use only, enabling us to refer immediately to the full records of these cases and to the certificates of death, if it is desired to make further studies of these cases at any time. Cases printed in italics are those in which the diagnosis of typhoid fever was more or less doubtful. Words in quotation are taken from statements made by the attending physician on the death certificate. Decedents who had been in Richmond six months or less are classified as nonresidents.

The fatal cases of typhoid fever occurring in Richmond during 1912, shown in detail in the above table, may be classified as follows:

Table Giving Summary of Typhoid Deaths in Richmond During 1912, Classified According to (1) Where Disease was Contracted, (2) Whether Resident or Nonresident of Richmond, and (3) Whether Diagnosis was Positive or Doubtful.

	CONTRACTED IN RICHMOND			CONTRACTED OUT OF RICHMOND			ALL CASES		
	Resident	Non-resident	Total	Resident	Non-resident	Total	Resident	Non-resident	Total
All cases.....	18	0	18	2	4	6	18	4	22
Diagnosis positive.....	10	0	10	2	4	6	12	4	16
Diagnosis doubtful.....	6	0	6	0	0	0	6	0	6

Reducing the most important of the above figures to death rates per 100,000 population, we get the following:

	Number of Deaths.	Death Rate per 100,000.
All deaths from typhoid fever in Richmond during 1912..	22	16.8
Excluding nonresidents who contracted the disease outside of Richmond	18	13.8
Excluding all cases contracted outside of Richmond.....	16	12.2
Excluding all cases contracted outside of Richmond and all cases contracted in Richmond in which the diagnosis was doubtful	10	7.7

METHOD OF CONTROL IN TYPHOID FEVER.

The line of work followed by the Health Department in connection with typhoid fever was the same as has been followed for the past four years. It is unnecessary to go into this in detail, as it is sufficiently described in

previous reports. While our methods are essentially the same, they are, perhaps, followed even more vigorously than in previous years. Our Medical Inspector, Dr. Hudson, deserves special credit for the manner in which his part of the work was carried out, and I refer you to his report for additional information concerning typhoid fever.

The work which was done during the year in connection with limiting the breeding of flies is believed to have played a considerable part in our campaign against typhoid fever. This work is described in another part of the present report.

The work which was done in connection with dry closets was also an important factor in the situation. This work, too, is described elsewhere.

As a final word, in bringing to a close that part of my report which relates to typhoid fever, I desire to say that our investigations and results during 1912 served even more fully to convince us of the correctness of the lines along which we have been working for the past four years. When we recall that our death rate from this disease was only 7.7 per 100,000 if the doubtful cases and the cases contracted outside of Richmond are eliminated, it will be seen that our rate has now almost reached the vanishing point so far as deaths are concerned. Our record of having (with a single exception) reduced the death rate from typhoid each year since 1906 to a rate lower than for the preceding year and to the lowest rate ever recorded for Richmond, is one which we cannot, of course, hope to continue without a break.

MALARIAL FEVER.

There were 3 deaths from malarial fever, or, rather, there were 3 deaths attributed to this cause, in Richmond during 1912, which is equivalent to a death rate of 2.3 per 100,000 inhabitants. The number of deaths from this cause and the death rate for the past nine years are given below:

YEAR	DEATHS FROM MALARIAL FEVER	
	No of Deaths	Rate per 100,000
1904.....	17	18.8
1905.....	28	30.4
1906.....	14	15.0
1907.....	32	28.2
1908.....	7	6.1
1909.....	9	7.7
1910.....	6	4.7
1911.....	1	0.8
1912.....	3	2.3

The above table shows an average annual death rate of 23.1 per 100,000 for the first four years (1904-1907, inclusive), and of 4.3 for the last five years.

The chief reason for this tremendous decline in the reported death rate from malarial fever in Richmond has been stated at considerable length in several of my previous reports, and it will therefore be given very briefly this year.

As a matter of fact, it is certain that the figures prior to 1907 were practically worthless. In that year, out of the 32 deaths attributed to this cause, 11 were reported by a single practitioner, while 22 of them (or over two-thirds of all) were reported by this physician and two others. Inquiry which I made at that time among eight of our leading doctors confirmed my own opinion that fatal malarial fever was practically unknown in Richmond, since these eight physicians had, collectively, had only one death from this disease during their entire course of practice, and this fatal case was contracted in a neighboring State!

Since then every effort has been used to induce the doctors of Richmond not to attribute to "malaria" every death the cause of which is not clear. It is especially interesting to note that the cases which were formerly assigned to malaria were not, as our Northern friends were inclined to believe, actually typhoid fever, since the decrease in the number of deaths assigned to malaria has gone hand in hand with a great decrease in the number of deaths from typhoid fever. As a matter of fact, most of the deaths formerly assigned to malaria were really due to tuberculosis, and the rest of them were probably obscure suppurative diseases of one kind or another.

While it is altogether probable that the work of the Health Department in connection with mosquitoes has lessened very considerably the number of cases of malarial fever in Richmond, it is not claimed that this work has materially, if at all, affected the death rate from this disease.

Even though we admit that our efforts have not saved a single life which would otherwise have been sacrificed to malarial fever, and that the decrease in the death rate from this cause as shown in the above table is altogether due to our getting more correct reports, we may nevertheless properly claim that this has in itself been of great benefit to our city. Nowadays the healthfulness of a community is one of the prime considerations taken into account by those who are seeking either homes for themselves and their families or suitable locations for industries. This being true, it cannot be denied that our being able to state that our death rate from malaria is 4.3 per 100,000 (the annual average for the past five years) rather than 23.1 (the annual average for the four preceding years) is a valuable financial asset to our city—even though the reported rate in previous years was due to errors on the part of some of our physicians and the lower rates for recent years mean simply the correction of these errors.

MALARIAL FEVER IN RICHMOND IN 1912.

While the number of deaths attributed to malarial fever in Richmond last year was the lowest on record, with a single exception, nevertheless this disease, in a nonfatal form, was extremely prevalent in certain parts of our city. Not being a reportable disease, our Department has no means of ascertaining how many cases of this disease there were.

The casual remark of one of our physicians—a member of our Board of Health—as to the amount of malarial fever which he was seeing in the course of his regular practice, led us in July to make inquiry of several other doctors with large practices in the locality in which the first-men-

tioned physician reported his cases. When these doctors, in turn, confirmed the statement, a house-to-house canvass was made of a large part of the southwestern section of our city. This canvass located 152 cases of malarial fever.

These cases, while occurring to some extent throughout the entire section canvassed, were chiefly located in three distinct groups. In each of these special neighborhoods search for the source of the trouble resulted in the finding of breeding places for mosquitoes. These were at once filled. Our special pamphlet on Mosquitoes and Malaria was freely distributed. Although further breeding of mosquitoes in the former places was thus promptly stopped, the mosquitoes which had already been hatched and which had distributed themselves in the houses were not so easily conquered, and cases of malaria continued to develop for some weeks.

DISTANCE TRAVELLED BY MOSQUITOES.

One of these breeding places was located several city blocks from the houses in which we found the cases of malaria for which we believed them to be responsible. Our city blocks run about sixteen to the mile, so that the mosquitoes in this instance apparently travelled several hundred yards in reaching their victims. This was contrary to the general belief that mosquitoes do not venture far from the place at which they are born.

It is entirely possible that we may have been mistaken in believing the special pool in question to have been at fault and that the actual breeding place from which the mosquitoes came was not found. Assuming, however, that we were correct, the explanation which we offer is that under ordinary conditions in a city mosquitoes do not travel very far, as they find their victims near at hand. In this case, however, the section between the pool and the house was vacant, thus making the houses in question the nearest ones available. Since the female mosquito (which is the only "biting" mosquito) is stated by all leading entomologists to require a meal of blood before being able to lay fertile eggs, and since preservation of the race is one of the strongest of all instincts, it seems entirely plausible that, when circumstances are such that the meal of blood is not to be had within a short distance, longer distances than are commonly thought are traversed.

Last summer's experience points to the necessity of adding malaria to the list of reportable diseases. Had this disease been reportable last year, there is little doubt but that the breeding places would have been discovered much sooner and that, in consequence, much needless illness would have been avoided.

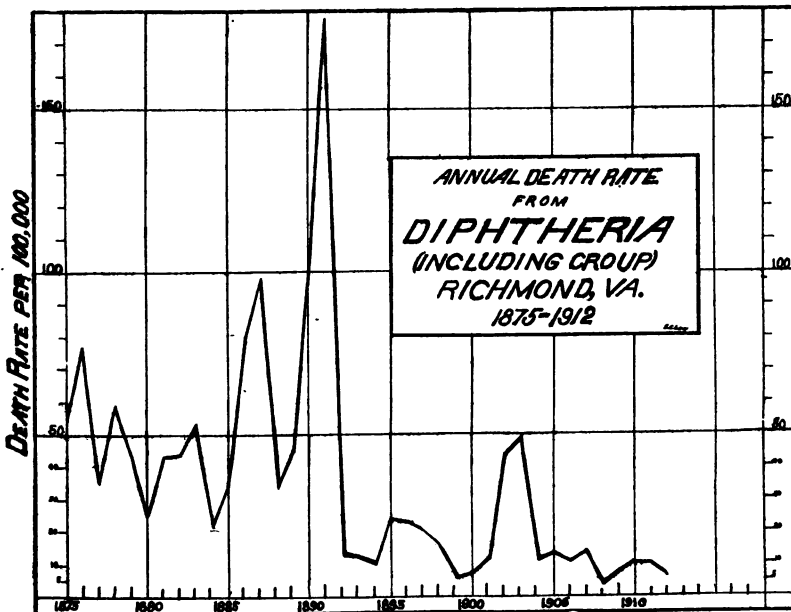
DIPHTHERIA.

There were 206 cases of diphtheria reported to the Health Department during 1912, 8 of which terminated fatally, giving a death rate of 6.1 per 100,000, which is, with two exceptions, the lowest rate ever recorded for our city. The following table gives the number of deaths and the death rate from diphtheria in the city of Richmond for the past 38 years.

Table Showing the Annual Number of Deaths from Diphtheria (including Croup), and the Annual Death Rate per 100,000 in the City of Richmond, Virginia, from 1875 to 1912.

YEAR	DEATHS FROM DIPHTHERIA		YEAR	DEATHS FROM DIPHTHERIA	
	Number of Deaths	Death Rate per 100,000		Number of Deaths	Death Rate per 100,000
1875.....	31	54.1	1895.....	20	24.0
1876.....	45	76.8	1896.....	9	22.7
1877.....	21	35.1	1897.....	17	20.2
1878.....	36	58.9	1898.....	18	15.4
1879.....	27	43.3	1899.....	5	5.9
1880.....	16	25.2	1900.....	6	7.0
1881.....	28	42.8	1901.....	10	11.6
1882.....	29	49.2	1902.....	38	45.2
1883.....	37	53.7	1903.....	44	49.3
1884.....	15	21.2	1904.....	10	11.0
1885.....	25	34.5	1905.....	12	13.0
1886.....	59	79.4	1906.....	10	10.7
1887.....	74	97.3	1907.....	16	14.1
1888.....	26	33.4	1908.....	4	3.5
1889.....	35	44.0	1909.....	9	7.7
1890.....	79	97.0	1910.....	13	10.2
1891.....	145	177.4	1911.....	13	10.1
1892.....	10	12.2	1912.....	8	6.1
1893.....	10	12.1			
1894.....	8	9.7			

The death rates given in the above table are shown graphically in the following diagram:



Combining the above rates in five-year periods, we get the following:

Period.	Average Annual Death Rate from Diphtheria per 100,000.
1875-1879 (5 years)	53.7
1880-1884 (5 years)	37.2
1885-1889 (5 years)	57.2
1890-1894 (5 years)	61.7
1895-1899 (5 years)	17.6
1900-1904 (5 years)	24.4
1905-1909 (5 years)	9.8
1910-1912 (3 years)	8.8
1908-1912 (last 5 years)	7.5

The average death rate for the entire period of 38 years was 35.2 per 100,000.

The average annual death rate from diphtheria from 1875 to 1894 (20 years) was 52.6 per 100,000. These were years before antitoxin was known, or before it was in general use.

The average annual death rate from 1895 to 1905 (11 years) was 20.3 per 100,000. These were years during which antitoxin was in general use—though not as general as later on—but before the reorganization of the Richmond Health Department.

Our methods of dealing with this disease have been so thoroughly described in previous reports that it is unnecessary to repeat all that has been previously stated so fully. I must, however, repeat several things which I have given in previous reports. Our low death rate was due not only to our efforts in lessening the spread of this disease, but also to our very active work in connection with cases of diphtheria of the laryngeal type. During 1912, as in previous years, the work of our Medical Inspector and of Dr. P. D. Lipscomb, our Consultant for Diphtheria, saved the lives of a great many children who without this service would almost certainly have died.

The work of familiarizing all the physicians in Richmond with the fact that laryngeal diphtheria must be very actively treated by immediate use of large doses of antitoxin, and that intubation combined with antitoxin will save a very large proportion of these cases, has progressed, through the fact that we have dealt with cases for physicians who have not had such cases in previous years.

NASAL DIPHTHERIA.

A very important line of work in connection with diphtheria was considerably developed during 1912 in connection with nasal diphtheria. Our Medical Inspector, Dr. C. C. Hudson, discovered a number of chronic and unrecognized cases of this disease in the course of following up reported cases. The work which Dr. Hudson has done in this connection is, so far as I know, unique. In the course of his routine visits to reported cases of diphtheria, Dr. Hudson has made it his practice to examine all other chil-

dren in the house, and when any one of these has been found by him with a sore nose, he has invariably taken a swab from every such case. He has followed the same practice in schoolrooms in which cases of diphtheria have been reported. In this way he has detected during the past year 18 or 20 cases of chronic nasal diphtheria, no one of which had been previously recognized. There is no question but that this work has served to lessen very materially the amount of diphtheria in Richmond, since every case of this kind, especially when occurring in a school child, must inevitably cause many other cases unless isolated until the diphtheria bacilli have disappeared.

It may possibly be objected that the bacilli in these cases were not virulent, since no laboratory test was made to determine this point. The reply to this is, however, perfectly obvious, since these cases were discovered in the course of investigating the unquestioned cases of true diphtheria to which they had given rise. A remarkable feature in connection with this subject is that a number of children having this chronic nasal type of diphtheria had been, or were actually at the time, under treatment by the family physician, and, in some instances, by nose specialists, without the nature of the trouble having been recognized.

This entire subject is one of tremendous importance, and will be covered fully in a paper which Dr. Hudson and I will prepare later. It is but fair to state that credit for this line of investigation is due to Dr. Hudson.

SCARLET FEVER.

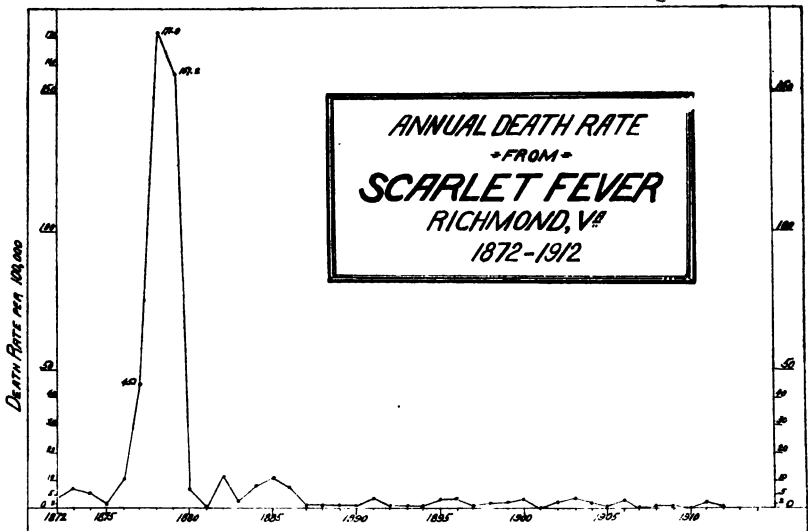
There were 326 cases of scarlet fever reported to the Health Department during 1912, with 1 death, which was equivalent to a death rate of .8 per 100,000. The case fatality was .3 of one percent. This record, therefore, adds another year to our long series of low mortality from this disease. There have been only 6 deaths from scarlet fever in Richmond during the past 6 years, an average of 1 death per year, while the death rate for the same period has averaged .8 per 100,000.

The number of deaths and the death rate from scarlet fever in Richmond for the past 41 years are given in the following table:

Table Showing the Annual Number of Deaths from Scarlet Fever and the Annual Death Rate per 100,000 in the City of Richmond, Virginia, from 1872 to 1912.

YEAR	DEATHS FROM SCARLET FEVER		YEAR	DEATHS FROM SCARLET FEVER	
	Number of Deaths	Death Rate Per 100,000		Number of Deaths	Death Rate Per 100,000
1872	2	3.7	1885	3	3.6
1873	4	7.3	1886	3	3.6
1874	3	5.3	1887	1	1.2
			1888	2	2.4
1875	1	1.7	1889	2	2.4
1876	6	10.2			
1877	27	45.1	1900	3	3.5
1878	105	171.9	1901	0	0.0
1879	98	157.3	1902	2	2.3
			1903	3	3.4
1880	4	6.3	1904	2	2.3
1881	0	0.0			
1882	8	11.9	1905	1	1.1
1883	2	2.9	1906	3	3.2
1884	6	8.5	1907	0	0.0
			1908	1	.9
1885	8	11.0	1909	1	.9
1886	6	8.1			
1887	1	1.3	1910	0	0.0
1888	1	1.3	1911	3	2.3
1889	1	1.3	1912	1	.8
1890	1	1.2			
1891	3	3.7			
1892	1	1.2			
1893	1	1.2			
1894	1	1.2			

The rates given in the above table are shown graphically in the following diagram:



Combining the figures in the above table, we get the following average annual number of deaths and average annual death rate from scarlet fever in Richmond for five-year periods.

PERIOD	AVERAGE ANNUAL MORTALITY FROM SCARLET FEVER	
	Number of Deaths	Rate Per 100,000
1872-1874 (3 years).....	3.0	5.4
1875-1879 (5 years).....	47.4	77.2
1880-1884 (5 years).....	4.0	6.9
1885-1889 (5 years).....	3.4	4.6
1890-1894 (5 years).....	1.4	1.7
1895-1899 (5 years).....	2.2	2.6
1900-1904 (5 years).....	2.0	2.3
1905-1909 (5 years).....	1.2	1.2
1910-1912 (3 years).....	1.3	1.0
1908-1912 (last 5 years).....	1.2	1.0
Entire period of 41 years.....	8.0	12.4

Inspection of the first of the above tables shows that the forty-one-year period naturally divides itself into three periods of very different mortality from scarlet fever, as shown in the following table:

PERIOD	AVERAGE ANNUAL MORTALITY FROM SCARLET FEVER	
	Number of Deaths	Rate Per 100,000
1872-1879 (8 years).....	30.8	50.8
1880-1886 (7 years).....	4.9	7.0
1887-1912 (26 years).....	1.6	1.8

As I have stated in other recent annual reports, the phenomenally low death rate from scarlet fever in Richmond is a thing which I cannot understand further than to say that this disease is apparently not a fatal one in Richmond. The death rate from scarlet fever for the entire registration area of the United States is regularly above 10 per 100,000, while, as shown above, our death rate has not been as high as this since 1885, while the highest rate recorded since 1886—that is, for the past 26 years—was 3.7 per 100,000, and our average rate for this period of 26 years has been 1.8.

UNRECOGNIZED CASES OF SCARLET FEVER.

As has been our previous experience, scarlet fever during the past year has been for the most part of so mild a type that a great many cases have been overlooked by the attending physicians. There is no way of telling how many cases have been thus overlooked; or how many cases may have been so mild that no physician was consulted. Our information concerning cases which were not recognized by the attendant physician is, of course, limited to the instances in which these cases were detected later

on by some other means. For the most part, these cases have been brought to our attention through the work of our Medical Inspector, who has located them in his investigation of the source of contagion in reported cases. In spite of the fact that several circular letters were sent to all Richmond physicians asking them to be on the lookout for mild cases of scarlet fever, and suggesting further that they examine the entire body in every case of sore throat which was seen by them in children and infants, unrecognized cases were still found very frequently. A few physicians especially seemed regularly to have overlooked mild cases of scarlet fever occurring in their practice.

It is indeed fortunate that the type of the disease was so mild. Otherwise these unrecognized cases would inevitably have caused a great deal of trouble. It may, however, be assumed that, had the disease been of a more severe type, it would not have been overlooked.

Scarlet fever is more dreaded by the public and, indeed, by most physicians, than is measles. Certainly our own figures do not justify any such opinion so far as Richmond is concerned. As shown in the above tables, there have been but 41 deaths from scarlet fever in Richmond in the past 26 years, while measles has been responsible for 196 deaths during the same period, and for 84 deaths in the past 6 years. Just what was responsible for the very high death rate from scarlet fever in 1877, 1878 and 1879 cannot be ascertained, but the record for these years is sufficient to show us that scarlet fever can be a most serious disease in our climate, and these years warn us that we are not justified in ever regarding this disease as insignificant. We have no way of knowing when the conditions which existed in these three years may again be duplicated, and although we believe that, even under the most extraordinary conditions, our present methods would enable us to hold the death rate to a much lower point than it reached in these three years, we must also believe that no efforts of ours could hold the death rate down to what it has averaged for the past 26 years.

MEASLES.

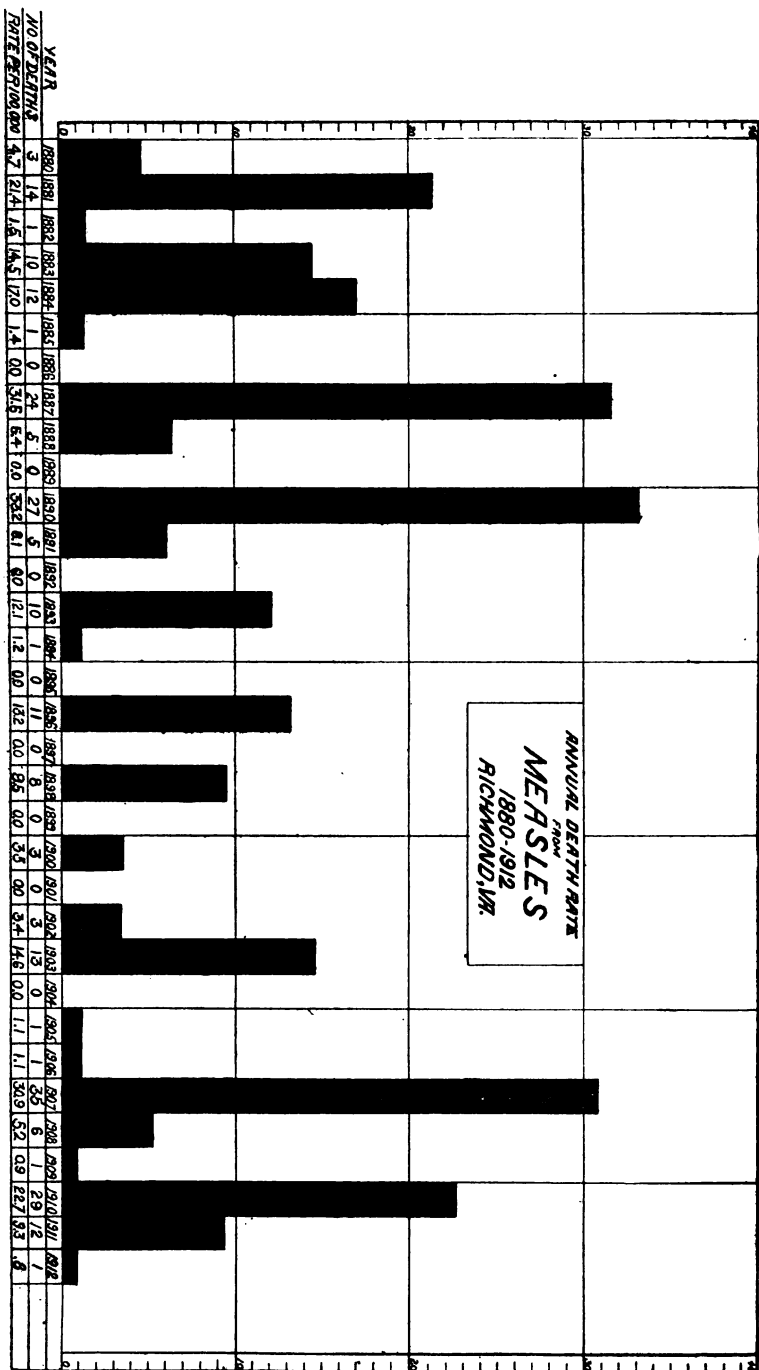
There were 852 cases of measles reported to the Health Department during 1912, with 1 death, this being equivalent to a death rate of .8 per 100,000. This low mortality for measles was confidently expected, since, following the periodicity shown by this disease in previous years, we had every reason to believe that 1912 would be an off year. The mortality from measles in Richmond for the past 33 years is shown in the following table:

Table Showing the Annual Number of Deaths and the Annual Death Rate from Measles, Richmond, Virginia, 1880-1912.

YEAR	No. of Deaths	Annual Death Rate per 100,000	YEAR	No. of Deaths	Annual Death Rate per 100,000
1880.....	3	4.7	1895.....	0	0.0
1881.....	14	21.4	1896.....	11	13.2
1882.....	1	1.5	1897.....	0	0.0
1883.....	10	14.5	1898.....	8	9.5
1884.....	12	17.0	1899.....	0	0.0
1885.....	1	1.4	1900.....	3	3.5
1886.....	0	0.0	1901.....	0	0.0
1887.....	24	31.6	1902.....	3	3.4
1888.....	5	6.4	1903.....	13	14.6
1889.....	0	0.0	1904.....	0	0.0
1890.....	27	33.2	1905.....	1	1.1
1891.....	5	6.1	1906.....	1	1.1
1892.....	0	0.0	1907.....	35	39.9
1893.....	10	12.1	1908.....	6	5.2
1894.....	1	1.2	1909.....	1	.9
			1910.....	29	22.7
			1911.....	12	9.3
			1912.....	1	.8

The death rates given in the above table are shown graphically in the following diagram:

ANNUAL DEATH RATE
FROM
MEASLES
1880-1912
RICHMOND, VA.



During the last week of November the number of cases of measles reported to the Department took a sudden jump. Investigation of these cases showed that 6 of them were among pupils attending a small private school. The cases were all exceedingly severe. Since a measles epidemic was due at some time during the winter of 1912-1913, the occurrence of these cases was thought sufficient ground for believing this to be the beginning of the expected epidemic. A circular letter was therefore immediately sent to every physician in our city, and notice of the approaching epidemic was sent to our daily papers. This was repeating what had been done at the beginning of the epidemic in 1910. Our prophecy was again fully justified, as 246 cases were reported in December and (although the statement carries us beyond the period which this report is supposed to cover) 1,618 cases were reported in January, and 1,114 cases up to the present time (February 15) in this month. With the 23 cases which were reported in November, we have already had 3,001 cases during the present epidemic.

The study of measles which was made by this Department in 1910 brought out a number of points of very great importance. This study has been continued during the present epidemic, and our information in regard to the epidemiology of this disease has been greatly increased. In 1910 we found that schools and Sunday-schools were the chief means of spreading this disease throughout the city. Our experience this year has served more fully to confirm this point. The most valuable information, however, which has been added during our present study is that, although the disease is spread throughout the city in the manner indicated, the fatalities do not occur among children of school age, but among younger children in homes into which the disease is introduced by older children attending school.

We have furthermore found that in past years there has been a great tendency to have no physician in attendance on these secondary cases, the mother in many instances believing that her experience, under the guidance of a physician, in the first case, qualifies her fully to treat any subsequent case. As nearly all deaths from measles in previous years have occurred in children under four years of age, every effort has been made by us to have parents call in their family physician for every case occurring in a child under this age. In this we have been most successful, and, while no effort of ours can possibly check the spread of the disease to any great extent, we believe that the securing of better attention for the cases will certainly result in lessening its fatality.

As in 1910, we have again found that two factors, neither of which we can possibly influence, are responsible for our inability to check the spread of measles. The first of these is the fact that measles is incomparably more contagious than any other disease with which we have to deal, and the second fact is the contagiousness of measles for five days preceding the appearance of the eruption. During these days, or some of them at any rate, a child who is developing measles may not be ill enough to remain at home, and in going about, and especially in attending school and Sunday-school, the contagion is spread.

At the start of the present epidemic, an effort was made to see what could be accomplished by the closing of schoolrooms in which measles had appeared, this closing to be for a period of five days—that is, from the ninth to the fourteenth day after the day on which the reported case was attending the school in question. The theory on which this plan was based is simple, and following it would undoubtedly have lessened to some extent the spread of the disease. It was soon found, however, that to follow this plan in every instance would have meant complete disorganization of our public school system. When this became apparent, consultation was held with Dr. J. A. C. Chandler, Superintendent of Schools, and a teachers' meeting was called. At this meeting, stress was laid on the contagiousness of the disease and especially on the fact that children who are apparently well can give the disease to others, if these children are developing the disease themselves. We agreed that, instead of closing rooms from the ninth to the fourteenth day after a case of measles had been in these rooms, we would notify the teacher in each instance on what days she must be especially on the lookout to detect children with the early symptoms of sneezing, coughing, inflamed eyes, and symptoms resembling an ordinary cold in the head, and that such children should be promptly separated from the class and examined by the school physician or nurse.

In addition to this, a special circular of information for parents of children attending any school in which measles had appeared was prepared and distributed in large numbers. In this circular special attention was directed to the importance of looking out for younger children in the home, of protecting these children from unnecessary exposure and of regarding with suspicion any of the early symptoms as above described.

WHOOPIING COUGH.

The year 1912 was distinctly an "off" year in regard to whooping cough. This disease, like measles, is characterized by an alternation of years of high and years of low mortality. During the year there were reported 24 cases of this disease, only 5 of which terminated fatally. This was equivalent to a death rate of 3.8 per cent. per 100,000, which is the lowest rate recorded since 1907.

The death rate from whooping cough in Richmond for the past 42 years is given in the following table:

Table Showing the Annual Number of Deaths and the Annual Death Rate from Whooping Cough, in Richmond, Virginia, 1871-1912.

YEAR	DEATHS FROM WHOOPING COUGH		YEAR	DEATHS FROM WHOOPING COUGH	
	Number of Deaths	Death Rate Per 100,000		Number of Deaths	Death Rate Per 100,000
1871.....	115	219.9	1890.....	45	55.3
1872.....	4	7.5	1891.....	6	7.3
1873.....	17	31.0	1892.....	38	46.3
1874.....	37	66.0	1893.....	16	19.4
			1894.....	21	25.4
1875.....	3	5.2	1895.....	4	4.8
1876.....	72	122.7	1896.....	24	28.7
1877.....	15	25.1	1897.....	31	36.9
1878.....	10	16.4	1898.....	3	3.6
1879.....	1	1.6	1899.....	0	0.0
1880.....	42	66.0	1900.....	27	31.7
1881.....	35	53.5	1901.....	35	40.4
1882.....	12	17.9	1902.....	19	21.6
1883.....	54	78.4	1903.....	56	62.7
1884.....	19	26.9	1904.....	2	2.2
1885.....	7	9.7	1905.....	1	1.1
1886.....	42	56.5	1906.....	52	55.7
1887.....	26	34.2	1907.....	3	2.6
1888.....	3	3.9	1908.....	33	28.8
1889.....	17	21.4	1909.....	13	11.2
			1910.....	47	36.8
			1911.....	51	39.4
			1912.....	5	3.8

The following grouping of the figures in the above table shows the average annual number of deaths and the average annual death rate from whooping cough in five-year periods since 1871.

PERIOD	AVERAGE ANNUAL MORTALITY FROM WHOOPING COUGH	
	Number of Deaths	Rate per 100,000
1871-1874 (4 years).....	43.3	81.1
1875-1879 (5 years).....	20.2	34.2
1880-1884 (5 years).....	32.4	48.5
1885-1889 (5 years).....	19.0	25.1
1890-1894 (5 years).....	25.2	30.7
1895-1899 (5 years).....	12.4	14.8
1900-1904 (5 years).....	27.8	31.7
1905-1909 (5 years).....	20.4	20.0
1910-1912 (3 years).....	34.3	26.7

Average number of deaths from whooping cough for each year since 1871 25.3

Average death rate per 100,000 from whooping cough for each year since 1871 34.0

While, as stated above, the mortality from whooping cough in 1912 was greatly reduced, at the same time our Department does not claim credit for this reduction, which is to be attributed entirely to the fact that 1912 was an off year in this disease. In epidemic years, as shown in the above tables, whooping cough is a serious malady, and, in fact, so far as Richmond is concerned, it is the most fatal of all contagious diseases of infancy and childhood.

SMALLPOX.

During the year, 37 cases of small pox were reported. One of these terminated fatally, this being the second death which has occurred from smallpox since reorganization of the Department in July, 1906. The number of cases of smallpox in Richmond in 1912 was greater than for several years past.

In many ways smallpox is the most unsatisfactory of all infectious diseases. Although it is the only infectious disease which we know how to control absolutely, nevertheless its complete control has never yet been accomplished. Having in vaccination an absolute preventive, smallpox still continues to demand the attention of health departments and to be a drain on the finances of all our cities, on account of the obstinacy and ignorance of a small part of our population. Early in the year, the Board of Health of the City of Richmond thought it desirable to adopt for a while the policy adopted first by Minnesota, and to place the responsibility of having smallpox upon those who neglected to protect themselves by vaccination. Although appreciating the logic of this position, I did not feel, personally, that this move was desirable, for two main reasons; first, because I felt that the cost of holding down this disease in Richmond was small in comparison with the damage which might be done our business interests by letting it take its course, and, secondly, because those who would be called on to suffer by reason of ignorance and opposition would frequently be innocent babies and children.

After the revised policy of the Board had been followed long enough to prove that the expected increase in the amount of smallpox in our city had actually been brought about, this policy was abandoned. Our former vigorous policy of vaccination, publicity and quarantine was again resorted to, and after a few weeks the situation was again under control.

There can be no question but that it is utterly illogical to spend every year a considerable sum of money in taking care of those who contract smallpox because of their own ignorance or obstinacy, and it is equally illogical for any person to dread the increase of smallpox in a city when every person has at hand the means of absolutely protecting himself and his family. Nevertheless, the amount which is actually spent is comparatively small and public sentiment will not as yet, in my opinion, sustain us in adopting the policy of doing nothing in connection with smallpox except to urge vaccination and to furnish free vaccination to all who apply for it.

For further particulars concerning smallpox in Richmond during the past year, I refer you to report of our Medical Inspector.

TUBERCULOSIS.

There were 270 deaths from consumption in 1912, and 51 deaths from other forms of tuberculosis, giving death rates of 206.6 and 39.0 respectively. The death rate from consumption was the lowest, with the exception of 1908, of any year on record. I must again call attention to the fact that a bare statement of the number of deaths from consumption does not at all give us a proper basis for comparison of the death rate of this disease with the death rate of former years, for the reason that in former years so many deaths actually due to consumption were attributed to other causes, either through carelessness in the matter of diagnosis or through deliberate falsification on the part of the attending physician. Our efforts to correct this evil have resulted, as was anticipated, in assigning to consumption many deaths which would in former years have been attributed to other causes. That this is actually the case is shown by the fact that the death rate from "malaria" and from pneumonia and bronchitis has steadily declined since our efforts have been exerted in the directions mentioned above. This was anticipated, and, while we are not able to show figures to confirm our belief that the death rate from consumption is decreasing, we are now for the first time securing approximately correct returns, and this is always our aim, regardless of the fact that we are thereby furnishing ammunition which those who do not believe that tuberculosis can be controlled may use against us.

PINE CAMP.

The work of the Richmond Tuberculosis Camp Society has, as in 1911, continued to be of great value to our city. The accommodations at Pine Camp were increased by the addition of a new building for better accommodation of advanced cases. The Camp now has a capacity of 34 beds.

The Association is asking the City Council to include in the budget for 1912 the sum of \$10,000.00 for Pine Camp, and it is to be hoped that this request will be granted. As a matter of fact, the City itself should undertake the segregation and treatment of all cases of consumption among the indigent of both races. At the present time, the 34 beds at Pine Camp furnish the sole facilities of this kind. Some provision must inevitably be made in the near future for cases of tuberculosis among the colored race.

COMPARATIVE MORTALITY OF THE WHITE AND COLORED RACES.

The story of the comparative mortality of the white and colored races, always a matter of the greatest interest, varies but little in its most salient points from year to year. In fact, the constancy (within reasonable limits) of the ratio of the crude death rate of the colored population to that of the white population is most remarkable. In 1909 the colored death rate was 66 per cent. higher than the white, in 1910 it was 64 per cent. higher, in 1911 it was 66 per cent. higher, and in 1912 it was 68 per cent. higher.

As in previous years, our crude death rate is enormously increased by reason of a high death rate among the colored population. As stated above,

the colored death rate last year was 68 per cent. higher than the white death rate. In arriving at this figure, the death rate for each race was calculated with nonresidents included. If nonresident decedents are excluded, the colored death rate was 85 per cent. higher than the white rate, or almost twice as high.

Stating the facts in a different way, the colored race, constituting only 37 per cent. of the total population, furnished 49.5 per cent. of all deaths, if nonresidents are included, and 51.8 per cent. if nonresident decedents are excluded. Stated in still another way, the colored population of Richmond is only 58 per cent. of the white population, but the number of deaths among the colored population was almost as great (98 per cent.) as the number of deaths among the white, if nonresident decedents are included, and actually 8 per cent. greater if nonresident decedents are excluded.

It is not only in the ratio which the crude death rate among the colored population bears to the crude death rate among the white population that there is such remarkable uniformity from year to year, but also in the ratio of the death rates from special causes. The following table shows the white and colored death rates from a number of causes which are deemed especially important, either because of the interest attached to the diseases themselves, because of the large number of deaths which they regularly cause, or because of the great contrast in the death rate for which they are responsible in the white and colored races.

Table Showing Comparative Mortality of the White and Colored Races from Certain Causes in Richmond, Virginia, During 1912.

CAUSE OF DEATH	No. of Deaths		Death Rate per 100,000*		Ratio of Colored Death-Rate to White
	White	Col'd	White	Col'd	
Typhoid fever—					
Including non-residents.....	16	6	19.4	12.5	.64
Residents only	12	6	14.5	12.5	.86
Malarial fever	3	0	3.6	0.0	.....
Measles	1	0	1.2	0.0	.....
Scarlet fever	0	1	0.0	2.1	.....
Whooping cough	2	3	2.4	6.2	2.57
Diphtheria (including croup)	6	2	7.3	4.2	.57
Influenza	14	11	17.0	22.9	1.35
Dysentery	7	12	8.5	24.9	2.91
Tetanus	4	7	4.8	22.9	4.72
Pellagra	5	7	6.1	14.5	2.40
Consumption	118	152	143.0	315.8	2.21
Other forms of tuberculosis	29	22	35.1	46.7	1.30
Syphilis	10	20	12.1	41.6	3.43
Cancer (of all organs)—					
Non-residents included	88	32	106.6	66.5	.62
Residents only	66	29	80.0	60.3	.75
Diabetes	13	3	15.8	6.2	.40
Apoplexy	91	108	110.3	224.4	2.04
Other diseases of the nervous system	7	6	8.5	12.5	1.47
Organic heart disease	160	125	193.8	259.7	1.34
Bright's disease	138	83	167.2	172.5	1.03
Heart and Bright's disease combined	298	208	361.0	432.2	1.20
Pneumonia (lobar or unqualified)	46	67	55.8	139.2	2.50
Bronchopneumonia	34	70	41.2	145.4	3.53
Lobar and bronchopneumonia combined	80	137	97.0	284.6	2.94
All diseases of the respiratory system (consumption not included); that is, Group IV of the International Classification	115	205	139.3	426.0	3.06
Diarrhea (under 2 years)	63	69	76.3	143.3	1.88
Diarrhea (over 2 years)	18	15	21.8	31.2	1.43
Appendicitis—					
Including non-residents.....	20	11	24.2	22.9	.94
Residents only	8	4	9.7	8.3	.86
Diseases of the puerperal state	17	15	20.6	31.2	1.51
Congenital debility	74	81	89.7	168.3	1.88
Senile debility	19	22	23.0	45.7	1.99
Legal electrocution	0	7	0.0	14.5	.....
Suicide	17	1	20.6	2.1	.10
All other violent deaths	73	89	88.4	184.9	2.09
Ill-defined or unknown	8	34	9.7	70.6	7.29
Total deaths, all causes—					
Including non-residents.....	1,372	1,343	1,662	2,790	1.68
Residents only	1,167	1,258	1,414	2,614	1.85

*All rates in this table are calculated from the official figures of the U. S. Bureau of the Census for the 1912 midyear population. These figures are: White, 82,537; colored 48,131.

†No one of the seven criminals electrocuted during 1912 was a resident of Richmond or committed in Richmond the crime for which he was legally electrocuted.

Judging from the number of inquiries received during the past year from many sections of the country, the high mortality of the negro race is a subject claiming increasing attention. I have in every annual report dwelt on the importance of this question and on our ignorance as to the underlying causes. I desire again to call attention to the importance of investigating this entire question, with the object of ascertaining whether the very high death rate among negroes in our cities is chiefly due to the fact that the conditions under which they live are, on an average, less favorable than the average conditions under which our white population

lives, or whether under the best conditions the negro race would still have a much higher death rate than the whites in cities. It is to be hoped that, with the large sums which are now available for the study of important sociological problems, a sufficient amount of money will be made available for the study of this exceedingly important question.

AVERAGE AGE AT TIME OF DEATH.

The average age at time of death of all decedents during 1912 was 37.40 years, or 37 years, 4 months and 24 days. The average age of the white decedents was 44.26 years, or 44 years, 3 months and 4 days; of the colored decedents, 30.40 years, or 30 years, 4 months and 24 days. The above results are calculated from the age distribution of decedents as given in Table No. 12, except that no separate calculation is made for decedents under 1 year of age, these being grouped together as averaging one-half year of life. The total years lived by all decedents less than one year of age make up so small a part of the total years lived by all decedents that the error introduced by grouping them together is practically negligible.

The average age of all decedents was 2 years and 18 days greater than in 1911—for white decedents, 3 years, 3 months and 29 days; and for colored decedents, 9 months and 7 days. As the average age at time of death was considerably higher in 1911 than in 1910, the contrast of the 1912 and 1910 figures are quite striking. Compared with 1910, the average age of all decedents in 1912 was 3 years, 2 months and 16 days greater—for whites, 4 years, 4 months and 10 days; for the colored race, 2 years, 1 month and 20 days.

As has been stated regularly in these reports, it must be clearly understood that the average age of decedents at the time of death is not to be regarded as the same thing as the average duration of life in any given community. In fact, the average age at time of death is not a thing from which deductions as to sanitary conditions or too close deductions of any kind can be drawn. Nevertheless, it is a source of some satisfaction to be able to state that those who died in Richmond in 1912 had, on an average, lived over 2 years longer than those who died in 1911, and over three years longer than those who died in 1910. It was stated in the 1911 report that the chief reason for the increased age at time of death over 1910 was the much smaller number of decedents under 1 year of age. This meant, of course, that the average age of decedents over 1 year of age had not been significantly increased. In 1912, however, as compared with 1911, the number of decedents under 1 year of age was only 6 less, so that the very significant increase of 2 years and 18 days in the average age of all decedents means that in 1912 the average age of decedents over one year old was much greater than in 1911.

As in every annual report, it must be made plain that the age distribution of the population is the most important factor in determining the average age at time of death. For this reason, comparisons between the average age at time of death in different communities is without value unless the age distribution of the population of these communities is known. Comparisons from year to year in the same community, however, have a

certain degree of value. In Richmond, for example, the great reduction in the number of deaths from acute contagious diseases and the actual increase in the number of deaths from apoplexy, heart disease, Bright's disease and cancer, as discussed in the first pages of the present report, is closely correlated with the average age at time of death, since the diseases in the former of these groups claim their victims much earlier in life than do those in latter group.

SANITARY IMPROVEMENT OF MILK SUPPLY.

, Our work in connection with the sanitary improvement of the milk supply of Richmond during 1912 was in many ways the most satisfactory work which has yet been done by the Health Department in this most important field. It is with great satisfaction that I am able to state that the improvement which was brought about during the year was in many respects more remarkable than anything which we have accomplished in previous years. The average score of all dairies during the year was 82.5 against an average of 81.3 for 1911—an advance of 1.2 points, while 1911 showed an advance of only .8 point over 1910. At the close of 1911 it seemed almost as if we had reached our limit and that further improvement could hardly be expected, yet, as just stated, the improvement which was brought about was actually greater than in 1911.

I must again commend the work of our Dairy Inspector, Mr. T. J. Strauch, to whom the above remarkable results are largely to be attributed. Mr. Strauch has steadily continued to add to his knowledge of dairying in all its branches, and his visits to dairy farms have come to be exceedingly welcome on the part of the dairymen, owing to the fact that he does not by any means limit himself to detecting deficiencies and stating the means by which they may be remedied, but goes much further than this and gives to every dairyman practical advice in connection with innumerable matters relating to the interests of the dairyman himself.

During 1912 Mr. Strauch has prepared new sets of plans for dairy barns, and has also worked up a special circular covering the most important points in connection with the selection of good dairy cows. All this information is furnished without cost to dairymen supplying milk, or desiring to supply milk, to the Richmond market. The work of Mr. P. L. Cantrell, Assistant Dairy Inspector, has also been in every way commendable, and part of the credit for the excellent showing which our Department has made must be attributed to him. The following table shows the improvement month by month in the standing of our dairy farms from the time that this work was started in May, 1907, until the close of 1912.

Table, Showing the Percentage of Dairy Farms in the Various Classes from May, 1907, Through December, 1910.

CLASS	PERCENTAGE OF ALL DAIRIES INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS							
	1907							
	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Scoring below 30.....	13.8	28.5	3.9	4.0	.....	.....	.....	.....
Scoring between 30 and 40.....	30.8	42.9	21.0	10.7	.....	.....	.....	.....
Scoring between 40 and 50.....	26.2	22.4	38.2	29.4	40.0	23.7	14.8	15.8
Scoring between 50 and 60.....	13.0	8.2	22.4	33.8	45.0	35.6	45.9	36.8
Scoring between 60 and 70.....	10.8	.....	13.2	22.6	12.5	33.9	29.5	23.6
Scoring between 70 and 80.....	4.6	.....	1.3	.....	2.5	6.8	8.2	18.4
Scoring between 80 and 90.....	.....	.....	.....	.....	.....	.....	1.6	5.4
Scoring between 90 and 100.....	.....	.....	.....	.....	.....	.....	.....	.....
Av. of all scores for the month	41.5	38.4	47.5	50.5	51.4	57.0	58.4	60.5

CLASS	PERCENTAGE OF ALL DAIRIES INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS											
	1908											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Scoring 40-50.....	2.8	.....	.....	.....	1.4	.....	.....	.....	.....	.....	.....	.....
Scoring 50-60.....	11.3	13.6	6.8	5.7	.....	.....	.....	.....	.....	.....	.....	.....
Scoring 60-70.....	35.2	44.1	39.8	34.3	29.7	27.2	24.7	16.4	16.0	10.6	26.0	27.0
Scoring 70-80.....	31.0	25.4	84.2	42.9	51.4	48.4	48.0	52.2	50.7	46.8	46.0	39.7
Scoring 80-90.....	19.7	16.9	19.2	17.1	14.8	21.2	23.4	25.4	29.0	38.3	22.0	30.1
Scoring 90-100.....	.....	.....	.....	.....	2.7	3.2	3.9	6.0	4.8	4.3	6.0	3.2
Ave. of all scores for the month.....	70.4	70.0	71.5	72.0	74.0	75.2	75.3	76.4	76.1	77.5	75.6	75.6

CLASS	PERCENTAGE OF ALL DAIRIES INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS											
	1909											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Scoring 50-60.....	.....	.....	*3.2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scoring 60-70.....	23.8	28.7	30.6	25.4	20.8	29.8	13.9	21.1	15.8	22.6	15.0	6.9
Scoring 70-80.....	54.0	49.2	51.6	54.0	52.8	46.4	53.2	53.3	52.8	46.6	48.4	57.5
Scoring 80-90.....	17.4	23.7	11.4	15.8	23.6	20.2	29.1	21.1	26.4	25.0	33.4	29.9
Scoring 90-100.....	4.8	8.4	3.2	4.8	2.8	3.6	3.8	4.5	5.5	4.8	3.2	5.7
Ave. of all scores for the month.....	74.8	74.8	72.6	75.0	75.3	74.8	76.9	75.9	77.4	76.4	77.6	78.3

*The two dairy farms scoring under 60 in 1909 were allowed to continue the sale of milk during March, owing to special circumstances.

CLASS	PERCENTAGE OF ALL DAIRIES INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS											
	1910											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Scoring 60-70	4.9	6.9	2.6	4.3	2.3	1.1	4.0	1.0	1.0	1.1	.....	1.0
Scoring 70-80	49.4	47.2	48.7	48.5	49.5	48.9	45.5	50.0	48.5	46.1	46.5	39.6
Scoring 80-90	87.0	87.5	88.4	88.6	82.5	83.3	82.4	82.0	83.5	47.2	46.5	50.0
Scoring 90-100	8.7	8.4	10.3	8.6	5.7	6.7	8.1	7.0	7.0	5.6	7.0	9.4
Average of all scores for the month.....	80.2	79.8	80.3	80.4	79.6	81.2	80.3	80.7	80.6	80.5	80.8	81.6

CLASS	PERCENTAGE OF ALL DAIRIES INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS											
	1911											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Scoring 70-80	42.1	39.1	44.1	48.9	41.1	46.1	39.8	39.6	41.0	40.6	35.0	27.1
Scoring 80-90	51.0	52.9	50.5	48.9	53.3	50.0	58.2	55.7	57.0	56.4	62.0	67.4
Scoring 90-100	6.9	8.0	5.4	2.2	5.6	8.9	2.0	4.7	2.0	3.0	3.0	5.5
Average of all scores for the month.....	81.6	81.7	80.8	80.4	81.4	81.1	81.1	81.1	81.3	81.3	81.6	82.6

CLASS	PERCENTAGE OF ALL DAIRIES INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS											
	1912											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Scoring 70-80	29.4	24.5	30.4	24.8	23.3	22.6	27.3	22.8	16.0	20.7	22.8	20.8
Scoring 80-90	65.2	70.2	66.7	71.5	74.1	73.6	70.0	74.2	84.0	76.6	74.3	74.5
Scoring 90-100	5.4	5.8	2.9	3.7	2.6	3.8	2.7	3.0	.....	2.7	2.9	4.7
Average of all scores for the month	82.4	82.6	82.0	82.4	82.3	82.5	82.5	82.5	82.5	82.6	82.3	83.0

The above table shows the improvement by months, but it is limited in its usefulness to those who are willing to devote a great deal of study of the details of our work. For others the following table, in which a summary of the above results is given by years will prove more useful.



Table Showing the Percentage of Dairy Farms in the Various Classes, from May, 1907, Through December, 1912—Summary by Years.

CLASS	PERCENTAGE OF ALL DAIRY FARMS INSPECTED DURING THE YEAR WHICH FELL IN EACH CLASS					
	Year					
	1907	1908	1909	1910	1911	1912
Scoring below 30	6.0					
Scoring between 30 and 40	13.2					
Scoring between 40 and 50	26.3					
Scoring between 50 and 60	30.1	3.2				
Scoring between 60 and 70	18.3	27.6	20.8	2.5		
Scoring between 70 and 80	6.2	43.1	51.7	47.4	40.4	23.8
Scoring between 80 and 90 .....	.9	23.1	23.1	42.4	55.2	72.9
Scoring between 90 and 100		2.8	4.1	7.7	4.4	3.4
Average of all scores for the year	50.4	74.1	75.8	80.5	81.8	82.5

The figures given in the last table are presented graphically in the following diagram, except that one group is made of all dairies scoring under 40.

Examination of the above tables and diagram shows that the improvement which was brought about in the scores of dairy farms during 1912 differed from that of previous years in that in all previous years the lowest scoring class of the preceding year was eliminated, while this was not done in 1912. As a matter of fact, it is hardly likely that this result will ever be attained, since it does not seem probable that our present lowest-scoring class (the class scoring between 70 and 80) will ever be regarded as too low to be admitted.

The percentage of places in this lowest class was, however, almost cut in half during 1912, while the percentage of places scoring between 80 and 90 was increased from 55.2 to 72.9. In fact examination of the diagram and the last preceding table shows that future improvement will in all probability tend towards the establishment of a single class—namely, the class scoring between 80 and 90. The class scoring above 90 has not increased since 1910. In fact, it reached this maximum in that year and has declined somewhat since then. As stated in my last annual report, this result is not to be regarded with disfavor, since we can not properly insist on having places score above 90, and those which do reach the class between 90 and 100 do so through the effort of certain dairymen to have places far beyond our requirements.

The most striking single figure which can be given to show what has been accomplished during the six years of dairy inspection is that during the first year of our work (1907) only .9 per cent. of our dairy farms scored above 80, while in the year just closed (1912) 76.2 per cent. of our places scored above 80. The following condensed table presents the most essential points in the briefest possible shape:

**DIAGRAM SHOWING IMPROVEMENT IN
DAIRY SCORES
DURING SIX YEARS OF DAIRY INSPECTION
1907-1912
HEALTH DEPARTMENT RICHMOND, VA.**

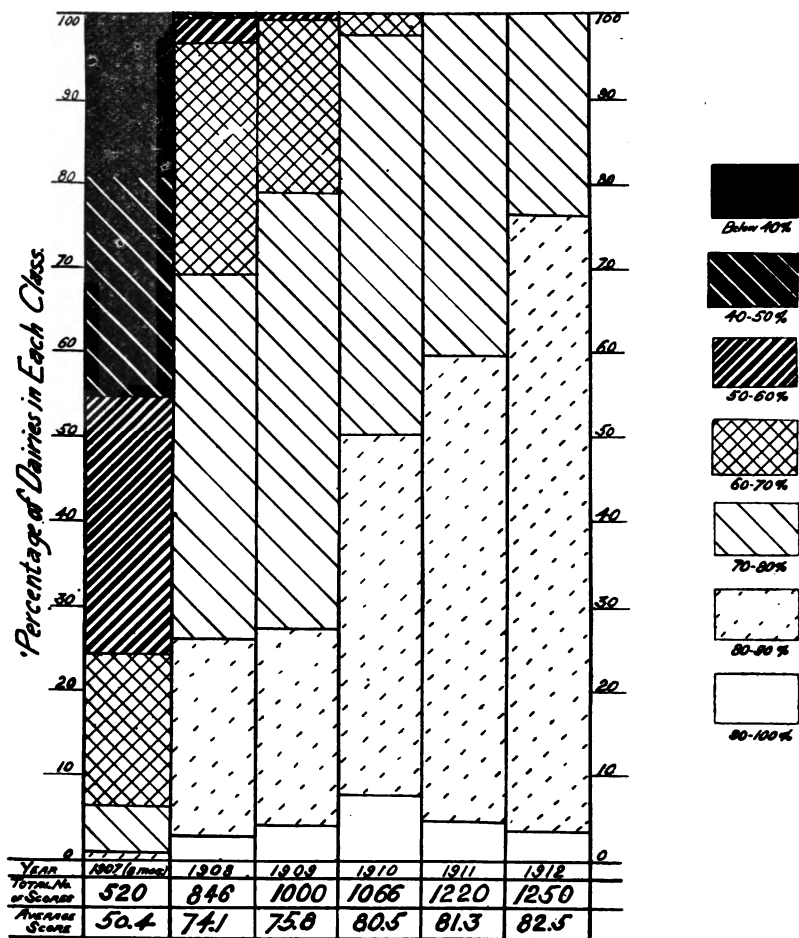




Table Showing the Percentage of Dairy Farms Scoring Above Various Limits—Summary by Years.

CLASS	YEAR					
	1907	1908	1909	1910	1911	1912
Scoring above 70.....	6.1	69.0	78.9	97.5	100.0	100.0
Scoring above 80.....	.9	25.9	27.2	50.1	59.6	78.2
Scoring above 90.....		2.8	4.1	7.7	4.4	8.3

All the above tables give actual figures for the various years during which our work has been conducted. The following table shows advance in the standing of dairy farms from year to year:

YEAR	Average Score of all Dairy Farms	Advance over Previous Year	Advance over 1907
1907.....	50.4		
1908.....	74.1		23.7
1909.....	75.8	1.7	25.4
1910.....	80.5	4.7	31.1
1911.....	81.3	.8	30.9
1912.....	82.5	1.2	32.1

The table which has just been given compares the average score for 1907 and the average score for 1912, by way of showing the total improvement which has been brought about. This does not, however, show the full extent of the improvement which has been made, owing to the fact that very great improvement was brought about during the eight months in 1907, while the average score for the whole of 1912 was not so high as the average score for December, 1912, considerable improvement having been brought about during the year 1912. The full extent of what has been accomplished can only be appreciated by comparing the average score for the first months of dairy inspection with the average score at the close of 1912. This comparison is made in the following table:

Average score for May, 1907.....	41.5
Average score for June, 1907.....	36.4
Average score for May and June, 1907.....	38.9
Average score for December, 1912.....	83.0
Points advance from the beginning of dairy inspection (average scores for May and June, 1907) to the end of 1912.....	44.1

This last figure shows that there has been an improvement of 113 per cent. since our inspection started in 1907.

BACTERIOLOGICAL EXAMINATION OF MILK.

During 1912 bacteriological examination was made of 1,663 samples of milk and cream. The results are shown in detail in the report of the

City Bacteriologist. The following table shows the percentage of samples of regular market milk falling in each of several classes in the years 1910, 1911 and 1912.

BACTERIA PER CUBIC CENTIMETER	PER CENT. OF ALL SAMPLES EXAMINED		
	1910	1911	1912
Less than 10,000	14.1	31.0	42.0
Between 10,000 and 50,000	56.5	46.0	35.3
Between 50,000 and 100,000	15.3	11.7	9.2
Between 100,000 and 250,000	11.9	6.9	7.1
Between 250,000 and 500,000	2.2	2.0	3.4
Between 500,000 and 1,000,000 .....		.8	1.5
Between 1,000,000 and 5,000,000		1.4	1.3
Over 5,000,000 .....		.2	.2

The above figures show that the regular market milk furnished the citizens of Richmond during the year 1912 was excellent from a bacterial standpoint, and was, taking all points into consideration, the best milk which had been furnished in any year. While it is true that in both 1911 and 1912 there was a larger percentage of samples containing over 500,000 bacteria per cubic centimeter than there was in the year 1910, nevertheless, this percentage was very small, being only 2.4 per cent. of all samples in 1911 and 3.0 per cent. in 1912. At the other end, however, examination of the above table shows that the percentage of samples of market milk containing less than 10,000 bacteria per cubic centimeter is steadily increasing, 14.1 per cent. of all samples having been in this class in 1910, 31.0 per cent. in 1911, and 42.0 per cent. in 1912. Remembering that one of the requirements for "certified milk" is that it shall contain less than 10,000 bacteria per cubic centimeter, we see that in 1912 almost half of our general market milk supply was up to this standard.

Although the above table shows that there was apparently a slight increase in the percentage of samples of market milk containing over 500,000 bacteria per cubic centimeter, this is due almost entirely to the fact that, in 1912, when any sample of milk was found in this class, another examination of this milk was at once made; hence if the cause for the high count had not meanwhile been ascertained and corrected, a second high count on the same milk supply was found. Really, however, the showing made for our market milk in 1912 is so remarkable that it is scarcely necessary to do more than present the bare figures; for any one who is accustomed to the reports of other cities, with the small number of their samples which fall under even 100,000 and the very large number of samples running into the millions, will need only a glance to see the great superiority of the milk supply of Richmond.

BIRTHS.

There were 3,069 births reported in Richmond during 1912, of which 1,907 (1,017 males and 890 females) were white and 1,162 (583 males and 579 females) were colored. These births are classified in tables No. 2, 2-a

and 3. The number of births reported in 1912 was 129 more than in 1911.

The above figures give a birth rate of 23.49 per 1,000 for the entire population. The reported white rate was 23.10, and the colored rate was 24.14. Both the white and colored rates were higher than have ever been secured in any previous year. We still feel that our reported birth rate is incomplete, but are not inclined to believe that the actual birth rate is as high as we had previously believed. In all probability, we are now securing at least 90 per cent. of all births which occur in our city.

As in previous years, the number of births reported for the city as a whole and the number reported among the white race was greater than the number of deaths, while for the colored race there were more deaths than reported births, the figures being as follows: for the entire population, the number of reported births exceeded the deaths by 354, or, if deaths among nonresidents are excluded, by 644. For the white race, the number of reported births exceeded the deaths by 535, or, if nonresidents are excluded, by 740. For the colored race, on the other hand, the number of deaths was 181 in excess of the number of births reported, or, excluding deaths among nonresidents, the number of deaths was 96 greater than the number of reported births. If rates are considered instead of actual numbers, we find that the birth rate of our entire population was 2.71 per 1,000 greater than our death rate. If deaths among nonresidents are excluded (which for this comparison would certainly seem to be proper), the reported birth rate for our entire population in 1912 was 4.93 per 1,000 in excess of our death rate. For the white race the birth rate was 6.48 per 1,000 greater than the death rate, if deaths among nonresidents are included, and 8.96 greater if deaths among nonresidents are excluded. For the colored race, on the other hand, the death rate was greater than the reported birth rate—3.76 per 1,000 greater if deaths among nonresidents are included, and 2.00 greater if deaths among nonresidents are excluded.

These figures seem to show that, eliminating the question of emigration and immigration, the white race in Richmond is showing a very satisfactory increase, while the colored race is actually decreasing, or, if it be assumed that the birth reports for the colored race are more defective than those for the white race, that the colored race is increasing very slowly, if at all.

Records of births in Richmond, as has been noted in my previous annual reports, were very defective prior to reorganization of the Department in 1906. The present ordinance requiring the reporting of births went into effect in 1900. The following table shows the number of births reported and the birth rate per 1,000 for each year since that time.

Year	Number of Births Reported,	Reported Birth- Rate per 1,000.
1900*	818	9.61
1901	729	8.42
1902	752	8.55
1903	666	7.46
1904	636	7.02
1905	608	6.61
1906†	1,133	12.13
1907‡	2,311	20.37
1908	2,806	24.44
1909	2,839	24.44
1910§	2,734	21.37
1911	2,940	22.74
1912	3,069	23.49

*The present ordinance requiring the reporting of births went into effect in 1900.

†Health Department reorganized July 1, 1906.

‡Annexation of new territory on December 6, 1906, added 18,615 to population.

§Annexation of Manchester on April 10, 1910, added 10,370 to population.

PREVENTION OF INFANT MORTALITY.

Our work for the prevention of infant mortality was expanded in several ways during the year 1912. Having learned from the work of the preceding two years the necessity of getting in touch with the babies as soon as possible after birth, the effort was made to employ three nurses throughout the entire year. In this way we were able to list a much larger number of babies than in any previous year, and thereby greatly increase the efficiency of our work. As in previous years, every effort was made to confine our work to those babies whose chances of survival without some special effort made to save them appeared to be far below the average.

As in previous years, this was done by endeavoring to supervise all babies in certain sections of the city in which the death rate from infantile diarrhea had previously been abnormally high, and outside of these districts to look for individual babies who, for one reason or another, appeared to be especially handicapped in their struggle for existence.

During the year 1,338 babies were listed, of which 653 were white and 685 colored. Of the 1,338 babies on our list, only 90 died before the end of the year, or 6.7 per cent. Of these 90 deaths, 39 were due to diarrhea and enteritis.

Comparing the above figures with the figures for all babies under one year of age in our city, the results are seen to have been most excellent. As I have repeatedly stated, it is impossible to make any exact statistical comparison, for the reason that, while every effort is made to get babies as young as possible on our list, nevertheless, many of these are over one year of age before the close of our calendar year, so that every effort to

compare the mortality among supervised babies with the mortality of all babies under one year of age must fail to give figures which are more than approximately correct. As there were 3,069 births reported to the Health Department during 1912, and as there were 528 deaths of babies under one year of age, the mortality among all babies combined in our city was 17.2 per cent., while among 1,338 listed with us, the mortality was only 6.7 per cent.

INFANTILE DIARRHEA.

There were only 132 deaths in Richmond last year from diarrhea and enteritis in babies under two years of age, against 196 in 1911. The death rate from infantile diarrhea was 101.1 per 100,000 in 1912 against 151.6 in 1911. The rate for 1911 was abnormally high, owing to a distinct epidemic of infantile diarrhea occurring late in the fall, after the time of the year at which infantile diarrhea has commonly subsided. Our rate for 1912 was the lowest that has been recorded since the reorganization of the Health Department in 1906.

INFANTILE DIARRHEA INFECTIOUS.

Our work in connection with infantile diarrhea during 1912 was modified in several ways, on account of our having come to believe the disease to be distinctly infectious in a considerable proportion of instances. We were brought to believe in the infectiousness of infantile diarrhea by our studies in the two previous years, and especially by the distinct epidemic just mentioned. Considering the disease to be infectious, our nurses were all instructed to pay special attention to the disinfection of the diapers of all babies and especially those having diarrheal trouble.

In addition to this, we believe that the spread of this infection by flies was a matter in every way worthy of consideration. An experiment on quite a large scale was conducted to throw further light on this point. It was perfectly evident that, if flies were indeed to be regarded as important in the spread of infantile diarrhea, any effort which was successful in limiting the number of flies in a given area should result in an immediate and pronounced lessening of infantile diarrhea in such section. A district comprising 35 city blocks, in which the number of fatal cases of infantile diarrhea had been regularly very high in previous years, was selected for this experiment. Two special inspectors were placed in this district. They made a thorough house-to-house canvass of this entire district, paying special attention to horse stables and to general conditions of cleanliness on all premises. This district was gone over three times within the following six weeks, and conditions were immensely improved.

In order to make this experiment as conclusive as a single experiment can ever be, our nursing force was instructed not to pay any attention whatsoever to the special lines by which this district was bounded, but to ignore these completely, and to conduct neither more nor less work in this special territory than in similar territory elsewhere in the city, outside of the two districts in which intensive work had been done for the two years previous. According to the testimony of residents in the 35 blocks just

mentioned, there was a most notable diminution in the number of flies. During the year 1912 there were but 3 deaths from infantile diarrhea in this territory, against 13 in 1911. Of these 3 fatal cases, 1 was already ill before our experiment started, and hence cannot properly be charged against us. It would thus appear that our theories regarding the infectiousness of infantile diarrhea and the part played by flies in the spread of this infection were in every way confirmed, although, to repeat, it is never safe to make too far-reaching conclusions from a single experiment of this kind.

TUBERCULOSIS NURSING.

A change of great importance was made on March 1st, on which date we took over the nursing done in connection with our tuberculosis dispensaries. When these were opened in 1907, it was thought to be in every way desirable to have the nursing done by special arrangement with the Instructive Visiting Nurse Association. According to this arrangement, the Association was given at first the salary of one nurse, and, later on, the salary of two nurses, and in return for this the Association attended to all to nursing work arising in the course of our campaign against tuberculosis.

During the existence of this arrangement, the services furnished by the Instructive Visiting Nurse Association were in every way satisfactory, and the change which was made on March 1st was in no way due to any dissatisfaction with the work which had been done. When our dispensaries were started, however, the Health Department had no nursing force whatsoever, and it was believed that it would not be advantageous to endeavor to supervise the one or two nurses needed for our tuberculosis work. When, however, we got to the point where we were employing three nurses for infant work, the advantage of having a nursing corps of our own to look after our tuberculosis work, as well as our work for the prevention of infant mortality, became apparent. The change which was made has proved to be in every way satisfactory, and brings the supervision of all cases of tuberculosis—both those cases which are treated at our dispensaries and other cases needing supervision—more directly under our immediate supervision.

For further details concerning the work for the prevention of infant mortality, I refer you to the report of our Chief Nurse, Miss M. J. Moore, and for further information concerning our tuberculosis work, I refer you to her report and that of Dr. P. D. Lipscomb and Dr. Giles B. Cook, the Chiefs of our Tuberculosis Dispensaries.

I desire to commend the excellent work which has been done by Miss Moore and her nursing staff, and also to express my appreciation of the services of our Chiefs of Clinic and of the other physicians connected with our dispensaries, all the latter having given their services without charge.

SANITARY INSPECTIONS.

As mentioned in my last annual report, sanitarians are rapidly coming to attach greater importance to sanitary inspections than they have been disposed to do in recent years. The reason for this was set forth at some

length in my last annual report, and more fully in a paper which I presented to the American Public Health Association at their meeting in Havana, Cuba, in December, 1911.

For my own part, I believe that work of this character, if guided by proper conception of the way in which insanitary conditions are prejudicial to health, is exceedingly important. The Richmond Health Department, in spite of having had its sanitary force increased by one man during the year 1912, is still hampered by the small number of men available for work of this kind.

Our Chief Sanitary Officer, Mr. Tuck, has done most excellent work, both personally and as head of the sanitary force. In many ways he has secured results of a far-reaching character, while his investigations have thrown light on a number of problems, and have pointed the way to accomplishing better results in the future. The other sanitary officers have also done splendid work.

During 1912 a large amount of work was done in connection with livery stables, both public and private. Our Chief Sanitary Officer, Mr. Tuck, devoted a great deal of time to this work, and the results which he secured exceeded our most sanguine expectations. While only a small proportion of all our large stables have thus far been made to comply with the rules and regulations of the Board of Health, still the work has gone far enough to show that it is only a question of continuing along our same lines in order to have every stable placed in good condition. Many objections were encountered in connection with putting in tight floors. While the rules of the Board of Health require a tight floor, they do not specify the kind of material. We ourselves felt great hesitancy in advocating concrete, but the more we looked into the matter, the more we became convinced that this material is by far the most satisfactory, and the theoretical objections to it disappear when the floor is properly laid and actually put in use. By having what is known as a "float" finish, or by having the concrete tooled in small blocks, the danger of the horses slipping is obviated.

The next most serious objection has been that horses would probably injure themselves by continuous stamping on a floor as hard as concrete. This has not been found to be actually the case. Proper bedding does much to obviate this difficulty, and when it is recalled that the presence of flies constitutes the chief cause for this stamping, and that in a stable which is properly constructed and maintained, the number of flies is reduced to a minimum, it is easily seen that this theoretical objection also disappears. Besides this, there are certain recognized dangers—especially in the nature of infections—which are far more likely to occur when the horses stand on a soggy earth floor; so that, taking everything into account, we have actually found that the horses are in every way better off on a concrete floor than on a floor of any other material.

Beyond any question, the work which was done during 1912 in connection with livery stables lessened to a considerable extent the number of flies in our city, and this, in turn, cannot but have had its effect in the limitation of diseases which may be fly borne. This subject, however, will be more fully discussed in another part of this report.

DRY CLOSETS.

The most important work accomplished by our sanitary force during 1912 was, as in previous years, done in connection with dry closets. The opening of the Virginia Avenue sewer and other large sewers enabled us to do away with 1,375 dry closets during the year. All dry closets which could not be thus abandoned were ordered to be placed in good condition. As I have repeatedly stated, we believe this to be the most important single policy whereby the death rate from typhoid fever has been so significantly reduced during the past four years.

For the other work done by our sanitary force, I refer you to the report of our Chief Sanitary Officer and the reports of the five sanitary officers who have worked under him. The record of 39,618 visits paid by our sanitary force, which consists of only six men, is in itself proof of their diligence, while consideration of the details of the work which they have accomplished cannot but be convincing as to the important part which this work played in preserving the health of our city.

FLIES.

Investigations made by our Department during the year in connection with the fly nuisance have served to convince us that this problem is far more complicated than it has heretofore been regarded. Our conceptions have undergone a number of changes as a result of our own investigations. Regarding the breeding places of flies, it has been stated that 90 to 95 percent of all houseflies in cities are bred in horse manure. Our own work has convinced us that this is a decided underestimation, and we have come to believe that, while it is true that the housefly may breed in garbage, in city dumps, and in any collection of organic matter, nevertheless, not less than perhaps 99 percent of them breed in horse manure. It appears to us at present that if any city can eliminate all breeding of flies in horse manure, the flies which breed in other places will scarcely constitute a real fly problem. Any one who has once seen, as we have repeatedly seen, large piles of horse manure which are seething masses of maggots, will hardly doubt the truth of the above assertion.

In the next place, we have been taught that by having sound, tight floors in horse stables, by having manure removed from these stables several times a day, by having tight receptacles for storing this manure, and by having the manure removed from these receptacles at short intervals, the fly-breeding problem would be largely controlled. As a result of our observations, we believe the problem to be far more complicated. In the first place, flies deposit their eggs in manure within a few minutes after it is dropped. We may therefore, assume that, even though manure is taken from a stable every hour, it will, nevertheless, contain large numbers of eggs of the housefly.

In the next place, we have found that where there is the smallest crack or opening in a manure receptacle, fly larvae (maggots) will, under certain conditions which we do not as yet understand, migrate from the receptacle in enormous numbers, and if there is near by any earth into which they

can penetrate, these larvae will enter the earth and there pupate, and later emerge as adult flies. I recall one marked instance in which a stream of maggots literally flowed from a small crack around the door of a manure bin and dropped onto an alley. At first glance, this alley appeared to be unpaved, but closer inspection showed (even before the surface dirt was swept aside) that the maggots which had fallen had arranged themselves in squares and were diligently entering the ground. These squares corresponded to the spaces between the granite blocks with which the alley was found to be paved when the surface dirt was swept aside. Digging into this earth, thousands of pupae were disclosed. In another instance where there was a very small opening in an otherwise tight concrete manure bin, our inspector found, literally a hatful of pupae.

We have recommended in the past the use of tight barrels as the best receptacles for stable manure, where only one or two horses were kept. Our belief in the desirability of this method received a rude shock when we rolled aside some of these barrels and found beneath each of them piles of hundreds of maggots which were actively entering the earth.

As regards Dr. L. O. Howard and other accepted authorities, the housefly lives through the winter as an adult fly, and breeding in the spring starts from these flies, which have hibernated in warm places. It has been held that neither larvae nor pupae pass through the winter alive. We have conducted some experiments in an endeavor to determine this point, but are not yet prepared to report on these.

The above observations and others of almost equal importance have served to show us that, as above stated, the entire fly problem is immensely more complicated than we have heretofore been led to believe. Our work will be continued, and we are confident that it will lead not only to the discovery of many important facts, but will also enable us to formulate methods which will be much more efficacious than any now followed.

I have devoted considerable space to the discussion of flies, for the reason that the more we investigate the subject, the more firmly are we convinced that the housefly is indeed a very active carrier of disease. Not only do we believe that typhoid fever is very commonly spread in this way, but our work has convinced us that infantile diarrhea is very commonly conveyed by the housefly. In my effort to throw light on this question, I conducted the experiment which is given elsewhere in this report.

EDUCATIONAL WORK.

Education of the people in matters of public health is recognized by every health officer as one of his main weapons in fighting disease in a community. The Richmond Health Department has for several years done considerable work in this direction. During 1912 many public lectures were given by various officers of the Department, a considerable amount of literature was distributed, and special articles were published in our daily papers. One of these papers initiated a special "fly-swatting" campaign, offering prizes to the children returning the largest number of flies. This contest extended over a period of two weeks. Owing to the amount of publicity which was thus given to the fly problem, this time was thought to be a good one for the Department to exert additional efforts for the education of the public as to the relation between flies and disease. During these

two weeks, one of our motion picture houses exhibited at each regular performance the well-known fly film, which was kindly placed at their disposal by the State Health Department. Arrangements were made whereby a lecturer from the Richmond Health Department gave a running talk each time that this film was shown. Besides this, the officers of our Department gave talks at each of the public schools, and, both in the schools and at the theatres above mentioned, literature on the fly question was freely distributed. In this way a large number of persons had their attention directed to the importance of flies as carriers of disease, and they were also informed as to the means by which the fly nuisance could be controlled or lessened.

Our exhibit at the State Fair having been very successful in 1911, it was again shown in 1912, many new features being added. This exhibit was visited by thousands, and again we were struck by the great interest shown by the public in matters of health. We were again surprised, however, by the comparatively small proportion of those who seemed to have learned the most elementary facts. That part of our exhibit which dealt with the breeding of flies seemed to be a revelation to about as large a proportion of our visitors as it was in 1911, in spite of the fact that so vigorous a campaign on this subject as has been described above had been conducted only a few months before.

CONCLUSION.

There remains but little to add in conclusion. I cannot, however, close this report without stating that the way in which many parts of it were written led naturally to the commendation of a few of the officers of the Department, while others (in several instances officers whose work has been exceptionally good) have not been specially mentioned. I wish therefore to express my high appreciation of the work of all the officers of the Health Department. I am confident that in no department of our city government have the men shown more real interest in the work or greater zeal in its execution.

If I have anywhere created the impression that the excellent results which have been attained in so many directions were due to my own individual efforts, I must here correct that impression and state very clearly that without the earnest and intelligent co-operation of my men no such results could have been secured.

To the members of the Board of Health I desire to express my most hearty thanks for their uniform consideration and for their sound advice in many difficult situations.

As a final word, there has been no year since I have been connected with the Health Department which has had so low a death rate as a whole and especially so low a death rate from communicable diseases. Our vital statistics establish beyond any question the fact that since its reorganization, six and a half years ago, the Richmond Health Department has obtained results far beyond the most sanguine hopes of those who were instrumental in bringing this reorganization about.

Respectfully submitted,

E. C. LEVY, M. D.,
Chief Health Officer.

FINANCIAL STATEMENT—SUMMARY.

Account.	Appropriation.	Expended.	Balance.
Payroll	\$25,190 17	\$25,141 67	\$ 48 50
Expense	6,150 00	5,862 10	287 90
Sanitary improvement of			
milk supply	4,500 00	4,404 64	95 36
Special vaccination	5,500 00	4,860 72	639 28
Tuberculosis campaign	4,000 00	3,339 39	660 61
Educational campaign	500 00	150 38	349 62
Total	\$45,840 17	\$43,758 90	\$2,081 27
Total appropriations as above.....			\$45,840 17
Reimbursements:			
Unexpended balances		\$2,081 27	
Food permits		534 00	
Refund account, overcharge express rate.....		60	
Proceeds from sale of horse.....		25 35	
Proceeds from sale of buggy.....		18 00	
Amount overdrawn for stenographer.....		4 72	
Total reimbursements			\$ 2,663 94
Net cost of maintenance of the Health Department for the			
 year 1912			\$43,176 23

Pay Roll.

Chief Health Officer	\$3,000 00 per annum	\$3,000 00
*Medical Inspector	2,000 00 per annum	1,729 17
Registrar of Vital Statistics	1,200 00 per annum	1,200 00
Clerk	900 00 per annum	900 00
Bacteriologist	900 00 per annum	900 00
Fumigator	900 00 per annum	900 00
Stenographer	600 00 per annum	600 00
Plumbing Inspector	1,400 00 per annum	1,400 00
Assistant Plumbing Inspector	1,000 00 per annum	1,000 00
†Food Inspector	1,200 00 per annum	1,000 00
Assistant Food Inspector	900 00 per annum	900 00
§Chief Sanitary Officer	1,200 00 per annum	850 00
Sanitary Officer, First District	900 00 per annum	900 00
Sanitary Officer, Second District	900 00 per annum	900 00
Sanitary Officer, Third District	900 00 per annum	900 00
†Sanitary Officer, Fourth District	900 00 per annum	862 50
Sanitary Officer, Fifth District	900 00 per annum	900 00
District Physician, First District	900 00 per annum	900 00
District Physician, Second District	900 00 per annum	900 00
District Physician, Third District	900 00 per annum	900 00
District Physician, Fourth District	900 00 per annum	900 00
District Physician, Fifth District	900 00 per annum	900 00
District Physician Sixth District	900 00 per annum	900 00
District Physician, Seventh District.....	900 00 per annum	900 00
Total disbursements for pay roll.....		\$25,141 67

*Increase in salary July 12, 1912, from \$1,500 to \$2,000.

†Loss of time in changing employees.

‡Increase in salary August 30, 1912, from \$900 to \$1,200.

§Position created April 12, 1912.

Expense.

Advertising	\$ 4 98
Automobile	636 50
Binding and ruling	82 41
Board and hire of horse	110 77
Directory	6 00
Disinfectants	6 25
Dr. P. D. Lipscomb, for services in connection with diphtheria	95 00
Drayage, freight and express	65 53
Electric batteries and lamps	10 73
Electrotypes	7 96
Extra nurse	18 00
Extra sanitary officers	185 00

Extra stenographer	15 00
Furniture	70 11
Insurance on automobile	42 55
Laboratory fixtures	201 75
Laboratory supplies	210 55
Membership in Congress of Hygiene and Demography.	5 00
Multigraph supplies	1 70
Motorcycle	250 00
Motorcycle supplies	3 45
Postage	312 88
Printing	362 58
Repairs, storage and supplies for automobile.....	388 88
Repairs to buggy and harness and shoeing horse.....	11 05
Repairs to night soil carts.....	6 75
Repairs to typewriters	18 75
Stationery	161 65
Typewriter	87 75
Telephones	142 40
Towels and soap supply	12 00
Travelling expenses of C. H. O. to Philadelphia.....	17 50
Travelling expenses of Plumbing Inspector, St. Louis..	80 00
Wood alcohol and peppermint.....	3 95

Infant work:

Badges for nurses.....	8 00
Handbags for use of nurses	14 00
Instruments, scales, etc.	62
Salary of nurses	2,204 10

Total disbursement for expense..... \$5,862 10

Sanitary Improvement of Milk Supply.

Bacteriological examination of milk.....\$	600 00
Board of horse	252 00
Buggy	115 00
Electrotypes	11 82
Expense incurred in extra inspection.....	14 00
Help in laboratory	275 00
Laboratory supplies	2 67
Repairs and supplies for bicycle.....	5 25
Repairs to buggy and harness, and shoeing horse.....	52 40
Services of Dairy Inspector	1,200 00
Services of Assistant Dairy Inspector.....	900 00
Travelling expenses of Dairy Inspector.....	975 00
Thermometers	1 50

Total disbursement for sanitary improvement of
milk supply \$4,404 64

Special Vaccination.

Board of horse	\$ 81 62	
Diphtheria antitoxin	692 85	
Dr. I. Curd, physician at smallpox hospital.....	708 85	
Dr. P. D. Lipscomb, services as intubator.....	117 00	
Dr. W. J. West, services as diagnostician.....	213 00	
Food supplies at smallpox hospital.....	481 59	
Fumigating outfits	105 00	
Fuel at smallpox hospital	66 25	
Guard and help at smallpox hospital.....	584 62	
Hire of horse	202 50	
Household supplies at smallpox hospital.....	7 38	
Medicines at smallpox hospital.....	3 48	
Plumbing at smallpox hospital.....	88 70	
Repairs to wagon	12 90	
Repairs to pump and well at smallpox hospital.....	10 45	
Telephone at smallpox hospital.....	78 55	
Vaccine virus	659 75	
Services of Vaccinators	747 23	
Total disbursement for special vaccination.....		\$4,860 72

Tuberculosis Campaign.

Boxes	\$ 80	
Disinfectants	312 40	
Drugs for dispensaries	119 06	
Electricity (lights)	11 30	
Fuel for dispensaries	18 00	
Instruments	7 50	
Janitor hire	120 00	
Milk	150 00	
Paper napkins	64 94	
Printing	10 30	
Rent of Third street dispensary.....	240 00	
Repairs at dispensaries	39 50	
Salary of nurses	1,436 35	
Services of chiefs of clinic.....	720 00	
Sputum cups and holders.....	72 25	
Supplies for dispensaries	16 99	
Total disbursement for tuberculosis campaign..		\$3,339 39

Educational Campaign.

Books	\$ 30 25	
Expenses of exhibit at Virginia State Fair.....	120 13	
Total disbursement for educational campaign..		\$ 150 38

E. L. HASKER,
Registrar.

TABLES
AND
SUBSIDIARY REPORTS

TABLE
Showing Number of *Marriage Licenses*

MONTH	1903		1904		1905		1906	
	White	Colore	White	Colored	White	Colored	White	Colored
January.....	29	24	22	15	41	31	35	24
February.....	45	22	36	32	81	18	41	32
March.....	17	24	25	32	35	18	22	29
First Quarter.....	91	70	82	79	107	67	98	85
April.....	71	47	57	28	56	41	73	46
May.....	23	31	34	18	32	27	20	26
June.....	67	42	65	39	69	33	62	45
Second Quarter.....	161	120	156	85	157	106	155	117
July.....	36	30	40	30	40	31	36	23
August.....	35	25	30	37	46	42	28	32
September.....	42	44	44	42	49	31	38	39
Third Quarter.....	113	99	114	109	135	104	100	94
October.....	60	40	62	38	64	30	56	35
November.....	57	40	58	30	75	39	67	36
December.....	64	45	61	51	69	53	98	65
Fourth Quarter.....	181	125	181	119	208	122	221	136
Total.....	546	414	533	392	607	399	574	432
Yearly totals.....	960		925		1,006		1,006*	

No. 1.

Issued 1903 to 1912, Inclusive.

1907		1908		1909		1910		1911		1912	
White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored
41	24	44	34	37	28	42	30	52	42	58	36
40	27	43	22	45	51	42	36	53	45	55	32
35	29	34	24	37	72	50	54	37	35	36	59
—	116	—	80	—	119	—	134	—	142	—	127
71	56	78	57	79	71	68	62	84	59	82	85
41	32	35	28	36	27	54	41	35	47	56	50
76	47	80	50	54	57	80	82	72	49	98	79
—	188	—	135	—	169	—	202	—	185	—	214
52	39	32	47	49	45	55	54	51	53	60	65
36	37	31	34	40	40	48	49	58	44	65	59
60	43	44	51	45	54	58	64	60	46	70	84
—	148	—	132	—	154	—	161	—	167	—	208
78	53	63	35	64	41	84	57	90	58	90	50
91	41	59	49	65	60	88	78	87	53	91	84
70	67	71	77	91	73	81	69	101	90	102	125
—	239	—	161	—	223	—	253	—	278	—	259
—	691	—	495	—	619	—	676	—	631	—	808
1,186		1,122		1,284		1,426		1,411		1,671	

TABLE No. 2.
*Births Reported During 1912, with Sex and Color.**

MONTH	WHITE		COLORED		TOTAL		GRAND TOTAL
	Male	Female	Male	Female	Male	Female	
January	101	79	50	57	151	136	287
February	89	71	45	55	134	126	260
March	100	84	55	47	155	131	286
April	88	82	49	45	132	127	259
May	74	76	53	67	127	143	270
June	82	68	55	48	137	116	253
July	91	60	43	59	134	119	253
August	78	72	41	31	119	106	225
September	75	74	33	29	108	103	211
October	94	73	45	49	139	122	261
November	73	69	59	53	132	122	254
December	77	83	55	39	132	111	243
Total	1,017	890	583	579	1,600	1,469	3,069

*Still births are not included in any tables of births or deaths.

TABLE No. 2A.
Giving Birth Rate During 1912, by Color.

COLOR	POPULATION (Official Estimate U. S. Bureau of the Census)	NUMBER OF BIRTHS			BIRTH RATE PER 1,000 INHABITANTS
		Male	Female	Total	
White	82,537	1,017	890	1,907	23.10
Colored	48,181	583	579	1,162	24.14
Total	130,668	1,600	1,469	3,069	23.49

TABLE No. 3.
Attendants at Birth.

BY WHOM REPORTED	WHITE		COLORED		TOTAL		GRAND TOTAL
	Male	Female	Male	Female	Male	Female	
Physician	810	716	140	148	950	864	1,814
Midwife	207	174	443	431	650	605	1,255
Total	1,017	890	583	579	1,600	1,469	,069

TABLE No. 4.
Still Births by Months.

MONTH	White	Colored	Total
January	7	14	21
February	11	13	24
March	10	11	21
April	13	20	33
May	10	20	30
June	5	19	24
July	8	20	28
August	7	11	18
September	17	12	29
October	12	19	31
November	4	13	17
December	7	20	27
Total	111	192	303

TABLE No. 5.
Still Births by Years, Since 1903.

YEAR	White	Colored	Total
1903	70	161	231
1904	74	147	221
1905	59	130	189
1906	70	130	200
1907	90	169	259
1908	109	165	274
1909	76	195	271
1910	95	189	284
1911	87	186	273
1912	111	192	303

TABLE No. 6.
Cases Examined by Coroner and Assistant Coroner.

SEX	White	Colored	Unknown Color	Total
Male	106	188	1	295
Female	36	142	0	178
Unknown sex	1	0	0	1
Total	143	330	1	474

SEX	White	Colored	Unknown Color	Total
Male	2	2	1	5
Female	14	26	0	40

Still-Births Viewed by Coroner.

SEX	White	Colored	Unknown Color	Total
Male	0	18	0	18
Female	0	15	0	15
Total	0	33	0	33

TABLE No. 7

*Deaths for the Year Ending December 31, 1912, Classified by Color and Sex, and Whether Residents or Non-Residents of Richmond.**

SEX	RESIDENTS OF RICHMOND			NON-RESIDENTS OF RICHMOND			TOTAL NUMBER OF DEATHS, INCLUDING NON-RESIDENTS		
	White	Col'd	Total	White	Col'd	Total	White	Col'd	Total
Male	600	602	1,202	129	60	189	729	662	1,391
Female	567	656	1,223	76	25	101	643	681	1,324
Total	1,167	1,258	2,425	205	85	290	1,372	1,343	2,715

*Still births are not included in any of the tables of births or deaths.

TABLE No. 8.

Giving Death Rate, with Non-Residents Included and Excluded.

COLOR	POPULATION (U. S. Bureau of the Census).	ACTUAL NUMBER OF DEATHS		DEATH RATE PER 100,000	
		Non-Res- idents Included	Non-Res- idents Excluded	Non Res- idents Included	Non-Res- idents Excluded
White	82,537	1,372	1,167	16.62	14.14
Colored	48,131	1,343	1,258	27.90	26.14
Total	130,668	2,715	2,425	20.78	18.56

TABLE No. 9.
POPULATION OF RICHMOND, VIRGINIA, 1870-1913
(Official Estimates of the U. S. Bureau of the Census.)

YEAR	White	Col'd	Total	YEAR	White	Col'd	Total
1870*	27,928	23,110	51,038	1890*	49,034	82,354	81,388
1871	28,712	23,562	52,274	1891	49,410	82,344	81,754
1872	29,496	24,054	53,550	1892	49,786	82,334	82,120
1873	30,280	24,528	54,808	1893	50,162	82,324	82,486
1874	31,064	23,998	55,062	1894	50,538	82,314	82,852
1875	31,846	25,470	57,318	1895	50,914	82,304	83,218
1876	32,632	25,942	58,574	1896	51,290	82,294	83,584
1877	33,416	26,414	59,830	1897	51,666	82,284	83,950
1878	34,200	26,886	61,086	1898	52,042	82,274	84,316
1879	34,984	27,358	62,342	1899	52,418	82,264	84,682
1880*	35,768	27,830	63,600	1900†	52,794	82,254	85,044
1881	36,552	28,302	64,854	1901	53,170	82,244	85,410
1882	37,336	28,774	66,110	1902	53,546	82,234	85,776
1883	38,120	29,246	67,366	1903	53,922	82,224	86,142
1884	38,904	29,718	68,622	1904	54,298	82,214	86,508
1885	39,688	30,190	69,878	1905	54,674	82,204	86,874
1886	40,472	30,662	71,134	1906	55,050	82,194	87,240
1887	41,256	31,134	72,390	1907	55,426	82,184	87,606
1888	42,040	31,606	73,646	1908	55,802	82,174	87,972
1889	42,824	32,078	74,902	1909	56,178	82,164	88,338
				1910†	80,593	47,821	128,414
				1911	81,565	47,725	129,290
				1912	82,537	47,629	130,166
				1913	83,509	47,533	131,042

*Census year.

†The population given for the Census years 1900 and 1910 are midyear (July 1st) estimates. The actual Census of 1900 gave a population of 85,050; that of 1910, a population of 127,828 as of June 1st and April 15th, respectively. The midyear estimates for these years will be used by the Census Bureau in calculating its official vital statistics rates for these two census years.

‡Annexation added a population of 18,615 on December 6, 1906, and a population of 10,370 on April 15, 1910.

Note. The official estimate of population for 1913 is added to the above table to facilitate the calculation of rates for a series of years in which that year is included.

TABLE No. 10.
Civil Condition of Decedents.

CIVIL CONDITION	WHITE		COLORED		TOTAL
	Male	Female	Male	Female	
Single	309	218	355	341	1,223
Married	320	197	243	162	922
Widowed	96	226	53	174	549
Divorced	1	2	3	2	8
Unknown	3	0	8	2	13
Total	729	643	662	681	2,715

TABLE No. 11.
Nativity of Decedents.

NATIVITY	WHITE		COLORED		TOTAL
	Male	Female	Male	Female	
Virginia	571	517	558	617	2,263
Other parts of the United States ..	86	78	71	50	285
Austria	1	0	0	0	1
Canada	2	0	0	0	2
China	0	0	1	0	1
Corsica	0	1	0	0	1
France	1	0	0	0	1
England	5	6	1	0	12
Germany	18	13	0	0	31
Greece	1	1	0	0	2
Ireland	10	9	0	0	19
Italy	6	2	0	0	8
Norway	1	0	0	0	1
Portugal	0	1	0	0	1
Prussia	3	1	0	0	4
Russia	2	0	0	0	2
Scotland	1	3	0	0	4
Sweden	1	1	0	0	2
Turkey	1	0	0	0	1
Wales	0	1	0	0	1
Unknown	19	9	31	14	73
Total	729	643	662	681	2,715

TABLE No. 13.
By Whom Certified.

BY WHOM CERTIFIED	WHITE		COLORED		TOTAL
	Male	Female	Male	Female	
Physician	632	611	497	561	2,301
Coroner	96	31	164	117	408
Board of Health	1	1	1	8	6
Total	729	643	662	681	2,715

TABLE No. 14.
Giving Mortality for Each Month of the Year, and the Relative Mortality of Each Month Reduced to a Standard of 100.

MONTH	WHITE		COLORED		TOTAL	Relative Mortality*
	Male	Female	Male	Female		
January	66	57	64	72	259	113
February	71	54	47	60	232	108
March	74	65	64	50	258	110
April	66	45	51	57	219	98
May	54	48	44	47	193	84
June	53	38	54	45	190	85
July	50	57	78	74	259	113
August	58	58	46	60	222	97
September	56	61	59	54	230	103
October	63	48	52	56	219	96
November	60	38	57	53	208	94
December	58	74	46	53	231	100
Total	729	643	662	681	2,715	

*The relative mortality for each month as calculated in this table takes into account the actual number of days in each month.

ATM. 5. 12

Handwritten text and a grid table are visible in the background. The table has multiple columns and rows, with some numbers and text visible, though mostly illegible due to fading and the hand's position.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100



TABLE No. 15.

Showing the Number of Deaths, Monthly, of the Two Races, from 1903 to 1912, Inclusive.

MONTH	1903		1904		1905		1906		1907		1908		1909		1910		1911		1912	
	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored
	81	98	78	73	70	55	78	77	117	135	126	142	95	90	163	131	107	114	123	136
January.....	63	99	97	113	77	94	71	76	105	121	107	126	87	89	124	108	110	88	125	107
February.....	80	84	102	113	81	92	83	81	117	141	110	113	110	128	113	105	109	140	139	114
March.....	87	93	72	79	59	82	76	93	112	113	97	90	102	111	108	110	106	100	111	108
April.....	82	119	64	82	47	64	78	73	106	101	111	107	110	105	133	123	111	119	102	91
May.....	83	103	73	114	98	109	87	110	128	131	113	127	123	90	143	146	139	111	91	99
June.....	71	107	98	106	77	92	97	92	115	141	112	106	115	114	129	129	136	137	107	152
July.....	68	60	62	66	58	65	70	83	89	97	112	93	77	89	91	124	119	101	116	106
August.....	64	77	68	76	66	58	88	71	97	90	91	75	78	82	116	98	93	105	117	113
September.....	64	65	62	83	67	51	79	91	102	113	92	78	97	107	96	113	112	117	111	108
October.....	48	89	55	64	60	62	73	82	76	79	91	82	100	88	116	115	118	110	98	110
November.....	83	81	49	65	60	73	111	88	125	101	99	83	111	91	150	109	117	99	132	99
December.....	884	1,061	868	1,018	820	887	991	1,017	1,268	1,368	1,262	1,224	1,200	1,204	1,471	1,416	1,377	1,341	1,372	1,343
Total.....																				
Grand Total.....	*1,935*		1,876*		1,717*		2,008†		2,652†		2,480†		2,404†		2,887†		2,718†		2,715†	

*Non-residents not included.

†Non-residents (178 in 1903; 165 in 1907; 167 in 1908; 219 in 1909; 331 in 1910; 267 in 1911, and 290 in 1912). Eliminating these, as in previous years, the total deaths were 1,960 in 1903; 2,497 in 1907; 2,319 in 1908; 2,186 in 1909; 2,656 in 1910; 2,451 in 1911, and 2,425 in 1912.

TABLE No. 16.
Deaths for the Year Ending December 31, 1919—Classified by Causes, Months, Color and Sex.

CAUSES OF DEATH	MONTHS												WHITE		COLORED		Grand Total		
	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Male	Female	Total	Male		Female	Total
I.—GENERAL DISEASES																			
1. Typhoid fever.....	3		1		1	2	3	2	7	3			6	10	16	3	3	6	22
4. Malaria.....				1									2	1	3				3
6. Measles.....		1												1	1				1
7. Scarlet fever.....							1												1
8. Whooping cough.....			2					1	1	3		2		2	2	4	1	2	3
9. Diphtheria and croup.....	2	1										6		4	6				8
10. Influenza.....	3	4	4	3	1	2				1	1		2	5	14	3	8	11	25
12. Cholera nostras.....	1																		1
14. Dysentery.....		1	2		2	3	5	2	3	1	1		3	4	7	6	7	13	19
16. Erysipela.....					1			1					1	1	2	1	0	1	3
20. Purulent infection and septi- cemia.....			1	2	1	1	1	2	1	2	1		4	2	6		1	1	7
24. Tetanus.....	1	1			2		2	3		2		2	3	1	4	4	7	11	15
26. Pellagra.....					2	1	2	3					5	3	8	3	4	7	12
28. Tuberculosis of the lungs.....	26	30	32	22	16	14	25	17	18	20	28	22	53	65	118	76	76	152	270
29. Acute miliary tuberculosis.....						1										4	2	6	7
30. Tuberculous meningitis.....	1	3	1	5	1	1	1	2			1		2	9	11	1	3	4	15
31. Abdominal tuberculosis.....			2	1	4	1			3	1		1	2	4	7	11	3	6	19
32. Pott's disease.....	3	2	2					1					3	3	3	3	3	3	19
33. White swellings.....					1					1			1	1	2	1	2	4	7
34. Tuberculosis of other organs.....	1				2	1							1	1	2				4
35. Disseminated tuberculosis.....	1																		1
36. Rickets.....								3	1	3	3	3	6	6	10	9	11	20	30
37. Syphilis.....	4	1	4	2	1	1	1	3	4	3		2	5	2	7	1	7	8	15
38. Gonococcus infection.....						2			1	1									1
39. Cancer of the buccal cavity.....					3	2			1	1			6	2	8	1	1	1	3
40. Cancer of the stomach and liver.....	2	1	4	1	4		1	2	3	7	4	3	12	12	24	3	6	9	18
41. Cancer of the peritoneum, in- testines, rectum.....	1		1				2	2	3		1	3	6	3	9	1	3	4	13
42. Cancer of the female genital organs.....						2	2	2	4	1	4	5	21	18	39	9	9	18	30
43. Cancer of the breast.....	1	1	4	4		2	2	2	3				3	13	13		6	6	15
44. Cancer of the skin.....	1	2	3	1		1	1	2	3			1			3				5

TABLE No. 16.
Deaths for the Year Ending December 31, 1912—Classified by Causes, Months, Color and Sex.

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
I.—GENERAL DISEASES																			
1. Typhoid fever.....	3		1		1	2	3	2	7	3			6	10	16	3	3	6	22
4. Malaria.....				1									2	1	3				3
6. Measles.....		1														1			1
7. Scarlet fever.....							1										1	2	3
8. Whooping cough.....			2					1				2		2	4	6	1	2	3
9. Diphtheria and croup.....	2	1							1	3									4
10. Influenza.....	3	4	4	3	1	2				1	1	6	2	9	14	3	3	11	12
13. Cholera nostras.....	1																		1
14. Dysentery.....		1	2		2	3	5	2	3				3	4	7	5	1	0	8
16. Erysipelas.....					1			1		1			1	1	2	1			3
20. Purulent infection and septi-																			
cemia.....			1		1	1	1	2	1	2	1		4	2	6		1		7
24. Tetanus.....	1	1		2				3	1				3	1	4	4	1	7	15
26. Pella-gra.....					2	1	2	3	2	1				5	5	3	4	7	16
28. Tuberculosis of the lungs.....	26	30	32	22	16	14	25	17	18	20	28	22	53	65	118	76	76	152	270
29. Acute miliary tuberculosis.....																			
30. Tuberculous meningitis.....	1	1	1	1	1	1	1				1		2	9	11	1	2	4	19
31. Abdominal tuberculosis.....	3	2	2	1	4	1		2	3	1		2	2	7	11	3	3	6	15
32. Pott's disease.....			1										3		3				3
33. White swellings.....								1				1							2
34. Tuberculosis of other organs.....	1				2	1							1	1	2	2			4
35. Disseminated tuberculosis.....																			
36. Erysipelas.....																			
37. Syphilis.....	4	1	4	2	1	2	1	3	4	3	3	3	5	6	10	9	11	20	30
38. Gonococcus infection.....																			
39. Cancer of the buccal cavity.....																			
40. Cancer of the stomach and liver.....	1				3	2			1				6	2	7	1		1	8
41. Cancer of the peritoneum, in-	2	1	4	1	4			2	3	7	4	3	12	12	24	3	5	8	32
testinal.....																			
42. Cancer of the female genital	1		1					2	3		1	3	6	3	9	1	3	4	13
organs.....																			
43. Cancer of the breast.....	1	1	4	4		3	2	2	4	1	4	5		21	21		9	9	30
44. Cancer of the skin.....	3	2	3	1		1		2	3				3	13	13		6	6	18
	1											1							2

45. Cancer of other, or unspecified organs.....	1	4	2	2	1	3	1	2	2	1	2	1	8	3	11	3	2	5	16
47. Acute articular rheumatism.....	1	2	2	.....	.....	.....	2	.....	.....	.....	1	.....	.....	.....	.....	4	6	2	4	17
48. Chronic rheumatism and gout.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	1	.....	1
49. Scourvy.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18	1	.....	3
50. Diabetes.....	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	0	.....	9
51. Exophthalmic goitre.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1	1
52. Leukemia.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1	1
53. Anemia, chlorosis.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1	1
54. Anemia, chlorosis.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1	1
55. Other general diseases.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1	1
56. Alcoholism (acute or chronic).....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	0	1
II.—DISEASES OF THE NERVOUS SYSTEM																					
60. Encephalitis.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
61. Simple meningitis.....	1	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	2	7	19
62. Locomotor ataxia.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	5
63. Other diseases of the spinal cord.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	1	1	10
64. Cerebral hemorrhage, apoplexy.....	23	8	10	20	19	13	18	13	18	14	25	18	18	14	57	34	91	53	55	108	
65. Softening of the brain.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11	.....	.....	11
66. Paralysis without specified cause.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	2	2	4
67. General paralysis of the insane.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	.....	3
68. Other forms of mental alienation.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	.....	3
69. Epilepsy.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	.....	3
70. Convulsions of infants.....	3	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	3	.....	4
71. Convulsions of infants.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	10	9	20
72. Other diseases of the nervous system.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	2	4	13
73. Diseases of the ears.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	3	2	7
III. DISEASES OF THE CIRCULATORY SYSTEM																					
74. Acute endocarditis.....	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	5	6	16
75. Organic diseases of the heart.....	36	28	29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	160	70	56	265
76. Angina pectoris.....	1	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	2	1	13
77. Diseases of the arteries, aneurysm, etc.....	3	2	1	3	3	1	1	1	1	.....	.....	.....	.....	.....	.....	.....	16	8	1	4
78. Embolism and thrombosis.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	4	1	5
79. Hemorrhage; other diseases of the circulatory system.....	2	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	1	.....	4
IV.—DISEASES OF THE RESPIRATORY SYSTEM																					
80. Diseases of the larynx.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	2
81. Diseases of the thyroid body.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1

TABLE No. 16—CONTINUED.

CAUSES OF DEATH	MONTHS												WHITE		COLORED		Grand Total		
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	Male	Female	Total	Male		Female	Total
DISEASES OF THE RESPIRATORY SYSTEM.—CONTINUED.																			
89. Acute bronchitis	2	5	6	2	3	1	1	1	2	3	1	4	3	3	8	10	14	24	27
90. Chronic bronchitis	3	3	4	2	2	1	1	1	2	3	2	2	5	7	12	2	5	7	19
91. Bronchopneumonia	12	11	13	9	6	2	3	3	11	10	10	15	13	21	34	30	40	70	104
92. Pneumonia	20	13	16	11	7	3	1	2	3	9	11	17	23	21	46	34	33	67	113
93. Pleurisy	1	1	1	2	2	3	1	2	3	1	1	1	3	3	3	3	3	3	6
94. Pulmonary congestion, pulmonary apoplexy	5	1	2	2	5	2	3	2	2	1	2	1	5	5	10	9	9	18	28
96. Asthma	1	1	1	1	1	1	1	2	1	1	1	1	3	3	3	1	1	1	4
98. Other respiratory diseases (tuberculosis excepted)	2	1	1	2	1	1	1	3	1	4	1	1	1	1	1	9	6	15	16
V.—DISEASES OF THE DIGESTIVE SYSTEM																			
99. Diseases of the mouth and annexa	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1
101. Diseases of the esophagus	1	1	1	2	1	1	1	1	1	1	2	1	1	1	1	1	6	7	9
102. Ulcer of the stomach	3	3	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1
103. Other diseases of the stomach (cancer excepted)	3	3	1	2	4	4	3	5	1	4	3	3	9	4	13	9	8	17	30
104. Diarrhea and enteritis (under 2 years)	3	3	3	4	2	22	45	17	14	12	7	3	34	29	63	33	36	69	132
105. Diarrhea and enteritis (2 years and over)	1	6	3	1	2	1	7	7	2	1	2	3	10	8	18	7	8	15	33
108. Appendicitis and typhlitis	5	3	2	1	3	1	3	4	2	2	2	3	12	8	20	5	6	11	31
109. Hernias, intestinal obstructions	1	1	3	2	1	2	4	4	4	2	2	1	5	8	13	6	4	10	23
110. Other diseases of the intestines	1	1	2	1	3	1	1	2	4	1	1	3	5	1	6	6	4	10	23
113. Cirrhosis of the liver	1	1	1	1	3	3	1	2	1	1	1	1	4	1	5	3	1	4	7
114. Biliary calculi	1	1	1	1	1	1	1	2	1	2	2	1	2	3	5	3	3	6	11
115. Other diseases of the liver	1	1	2	1	1	1	1	1	1	2	2	1	3	3	1	4	3	5	9
117. Simple peritonitis (nonperitoneal)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	3	3	6	9
118. Other digestive diseases (except cancer, tuberculous)	1	1	1	2	1	1	1	1	1	1	1	1	1	2	3	1	1	2	2

VI.—DISEASES OF THE GENITO-URINARY SYSTEM														
119. Acute nephritis.....	3	4	3	1	2	1	5	6	3	3	15	8	5	41
120. Bright's disease.....	20	17	19	14	16	16	18	22	19	24	15	21	21	221
121. Other diseases of the kidneys and adnexa.....			1			1	2	4	1	1		1	2	7
122. Diseases of the bladder.....							1						1	4
123. Other diseases of the urethra, urinary abscess, etc.....				1									1	1
124. Diseases of the prostate.....				1				2					2	1
125. Uterine tumor (noncancerous).....	1	1		1	1			1	1	1		1	2	5
126. Diseases of the uterus.....			1					1					2	8
127. Cysts and other tumors of the ovary.....													2	1
128. Other (monoveneral) diseases of female genital organs.....	1		1	2		1	1	1	3		1		2	3
VII.—THE PUERPERAL STATE														
134. Accidents of pregnancy.....								1		1	1	1		4
135. Puerperal hemorrhage.....		2	1					1		1			2	2
136. Other accidents of labor.....			1					1	2	1		1	3	5
137. Puerperal septicemia.....	2		1		2		4				2	4	4	1
138. Puerperal albuminuria and convulsions.....								1	3			2	5	12
VIII.—DISEASES OF THE SKIN														
142. Gangrene.....													1	1
144. Acute abscess.....						1			1			1	2	3
145. Other diseases of the skin and adnexa.....									1	1		1	1	2
IX.—DISEASES OF THE ORGANS OF LOCOMOTION														
148. Diseases of the bones (tuberculosis excepted).....	1				1			1	1			1	2	4
X.—MALFORMATIONS														
150. Congenital malformations (stillbirths not included).....	1	2	1	1	1		3			2	1	1	10	13
XI.—DISEASES OF EARLY INFANCY														
151. Congenital debility, icterus and sclerema.....	8	15	15	8	9	15	17	10	16	14	12	16	74	155

TABLE No. 16—CONTINUED.

CAUSES OF DEATH	MONTHS												WHITE		COLORED		Grand Total		
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	Male	Female	Total	Male		Female	Total
DISEASES OF THE RESPIRATORY SYSTEM.—CONTINUED.																			
89. Acute bronchitis	2	5	6	2	3	1	1	1	2	3	1	4	5	3	3	10	14	24	27
90. Chronic bronchitis	3	3	4	2	2	2	1	1	2	2	2	2	2	7	12	2	6	7	19
91. Bronchopneumonia	12	11	13	10	6	3	3	3	11	10	10	15	13	21	21	34	40	70	104
92. Pneumonia	20	13	16	11	7	3	1	2	3	9	11	17	25	21	46	34	33	67	113
93. Pleurisy	1	1	2	2	2	2	2	2	2	1	1	1	3	3	3	3	3	3	6
94. Pulmonary congestion, pulmonary apoplexy	5	1	2	2	5	2	3	2	2	1	2	1	5	5	10	9	9	18	28
95. Asthma	1	1	1	1	1	1	1	2	1	1	1	1	3	3	3	1	1	1	4
96. Other respiratory diseases (tuberculosis excepted)	2	1	2	2	1	1	1	3	1	4	1	1	1	1	1	9	6	15	16
V.—DISEASES OF THE DIGESTIVE SYSTEM																			
99. Diseases of the mouth and adenæ																			
101. Diseases of the oesophagus	1	1	1	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1
102. Ulcer of the stomach	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9
103. Other diseases of the stomach (cancer excepted)	3	1	1	2	4	4	3	5	1	4	3	1	9	4	13	9	8	17	30
104. Diarrhea and enteritis (under 2 years)	3	3	3	4	2	22	45	17	14	12	7	3	34	29	63	33	36	69	132
105. Diarrhea and enteritis (2 years and over)	1	6	3	1	2	1	7	7	2	1	2	1	10	8	18	7	8	15	33
108. Appendicitis and typhlitis	5	3	2	1	3	1	3	4	2	2	2	3	12	8	20	5	6	11	31
109. Hernias, intestinal obstructions	1	1	3	2	1	2	4	4	2	2	2	1	5	8	13	6	4	10	23
110. Other diseases of the intestines	1	1	2	1	1	1	1	1	1	1	1	1	5	5	10	1	1	2	7
113. Cirrhosis of the liver	1	1	2	1	3	3	1	2	4	1	1	1	4	1	5	6	5	11	16
114. Biliary calculi	1	1	2	1	1	1	1	1	1	1	1	1	2	3	5	1	1	2	6
115. Other diseases of the liver	1	1	2	1	1	1	1	1	1	1	1	1	3	1	4	3	3	6	9
117. Simple peritonitis (nonpuerperal)	1	1	1	1	1	1	1	1	1	1	1	1	3	1	4	1	1	2	2
118. Other digestive diseases (except cancer, tuberculosis)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2

VI.—DISEASES OF THE GEN- ITO-URINARY SYSTEM

119. Acute nephritis.....	3	4	3	1	2	1	5	6	3	8	5	8	10	18	9	14	28	41
120. Bright's disease.....	20	17	19	14	16	18	18	22	19	24	15	72	66	138	44	89	83	221
121. Other diseases of the kidneys and adnexa.....			1			2	4	4	1	1		1	4	5	1	2	2	7
122. Diseases of the bladder.....						1								2	1	1	2	4
123. Other diseases of the urethra, urinary abscess, etc.....				1											1		1	1
124. Diseases of the prostate.....		4		1	1	1	2	2		1		6	3	6	2		2	8
125. Uterine tumor (noncancerous).....	1	1			1		1	1			1	1	2	2		1	2	3
126. Diseases of the uterus.....		1	1										2	2		1	1	3
127. Cysts and other tumors of the ovary.....													2	2		1	1	3
128. Other (monoveneral) diseases of female genital organs.....	1		1	2	1	1	1	1			1		2	2		6	6	8

VII.—THE PUERPERAL STATE

134. Accidents of pregnancy.....								1		1	1		2	2		2	3	4
135. Puerperal hemorrhage.....		2	1					1			1		2	2		3	3	5
136. Other accidents of labor.....		1	1				1	1	2	1		1	4	4		1	5	6
137. Puerperal septicemia.....		1	1		2		4				2		4	4		3	3	12
138. Puerperal albuminuria and convulsions.....								1	3			2		5	5	1	1	6

VIII.—DISEASES OF THE SKIN

142. Gangrene.....														1				1
143. Acute abscess.....										1		1	1	1		2	2	3
144. Other diseases of the skin and adnexa.....									1	1				1		1	1	2

IX.—DISEASES OF THE OR- GANS OF LOCOMOTION

146. Diseases of the bones (tubercu- losis excepted).....	1				1			1	1				2	3	1		1	4
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X.—MALFORMATIONS

150. Congenital malformations (ectibria not included).....	1	2	1	1	1		3			2	1	1	9	1	10	3	3	13
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XI.—DISEASES OF EARLY INFANCY

151. Congenital debility, icterus and sclerema.....	8	15	15	8	9	15	17	10	16	14	12	16	44	30	74	38	48	81	185
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TABLE No. 16—CONTINUED.

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
DISEASES OF EARLY INFANCY—CONTINUED																			
152. Other diseases peculiar to early infancy	4	3	1	.....	.....	4	2	2	1	1	2	.....	8	3	11	6	3	9	20
XII.—OLD AGE																			
154. Senility	4	3	2	2	2	1	1	.....	3	1	.....	1	5	14	19	1	1	2	22
XIII.—EXTERNAL CAUSES																			
155. Suicide by poisoning	1	.....	1	1	1	1	.....	1	.....	.....	.....	1	5	1	6	.....	.....	.....	6
158. Suicide by drowning .....	.....	1	.....	.....	.....	.....	1	.....	.....	1	.....	2	1	1	2	.....	.....	.....	1
159. Suicide by firearms .....	.....	.....	.....	.....	.....	.....	.....	.....	3	1	2	.....	8	.....	8	1	.....	1	9
160. Suicide by cutting or piercing instruments .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	1	.....	.....	.....	1
162. Suicide by crushing .....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
165. Other acute poisonings	1	.....	1	1	.....	.....	1	.....	.....	1	.....	.....	2	.....	2	.....	.....	.....	2
166. Conflagration .....	.....	.....	1	1	2	.....	1	.....	1	1	2	.....	3	5	8	2	7	9	17
167. Burns	6	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
168. Absorption of deleterious gases	2	2	2	.....	.....	3	2	.....	1	.....	.....	1	.....	1	1	5	1	6	7
169. Accidental drowning .....	.....	2	1	1	3	.....	1	2	.....	3	.....	2	7	.....	7	6	.....	6	13
170. Traumatism by firearms	1	.....	1	1	.....	.....	1	.....	.....	.....	.....	.....	2	.....	2	6	2	8	10
171. Traumatism by cutting or piercing instruments .....	.....	.....	1	1	.....	.....	.....	.....	.....	1	.....	.....	2	.....	2	.....	.....	.....	2
172. Traumatism by fall	4	4	1	4	2	3	1	2	2	4	2	.....	15	7	22	6	1	7	29
173. Traumatism in mines and quarries .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
174. Traumatism by machines	2	.....	.....	1	.....	2	2	.....	.....	.....	.....	.....	2	.....	2	4	.....	4	6
175. Traumatism by other crushing .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
176. Injuries by animals	1	.....	2	2	2	1	3	3	7	1	2	.....	10	.....	10	11	1	12	22
178. Starvation .....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	4	.....	4	.....	.....	.....	4
179. Excessive cold .....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	1	.....	1	.....	2
179. Effects of heat .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	1
182. Homicide by firearms	1	2	1	2	1	.....	3	.....	.....	1	1	.....	3	1	4	9	1	10	12

183. Homicide by cutting or piercing instruments	2	2	1	1	2	1	1	2	1	1	7	7
184. Homicide by other means	1	1	1	1	1	2	1	2	1	1	5	10
185-A. Legal electrocutions	2	1	1	1	1	1	1	1	1	1	6	7
185-B. Other external violence	1	1	1	1	1	1	1	1	1	1	3	6
XIV.—ILL-DEFINED DISEASES												
187. Ill-defined organic diseases	1	1	1	1	1	1	1	1	1	1	1	1
188. Cause of death not specified or ill-defined	8	4	6	5	1	1	5	2	3	3	12	33
Total deaths from all causes	259	232	253	219	193	190	259	222	230	219	662	1,343
								729	643	1,729	681	715

TABLE No. 17—CONTINUED

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
VI.—DISEASES OF THE GEN- ITO-URINARY SYSTEM																			
119. Acute nephritis.....	2	1	1	1	1	1	1	1	2	3	1	1	1	2	7	8	1	1	4
120. Bright's disease.....	1	1	1	1	1	1	1	1	1	1	1	1	10	7	17	1	1	2	19
121. Diseases of the prostate.....	1	1	1	1	1	1	1	1	1	1	1	1	3	3	6	1	1	2	4
122. Uterine tumor (noncancer- ous).....	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	2	3
130. Diseases of the uterus.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
131. Cysts and other tumors of the ovary.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
132. Other (nonvenereal) diseases of the female genital organs	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3
VII.—THE PUERPERAL STATE																			
134. Accidents of pregnancy.....	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	1	1	1	1
135. Puerperal haemorrhage.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
136. Other accidents of labor.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
137. Puerperal septicemia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
IX.—DISEASES OF THE OR- GANS OF LOCOMOTION																			
146. Diseases of the bones (tuber- culosis excepted).....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	3
X.—MALFORMATIONS																			
150. Congenital malformations (stillbirths not included).....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

XI.—DISEASES OF EARLY INFANCY

151. Congenital debility, icterus, and sclerema 1 1
154. Scallity 1 1

XIII.—EXTERNAL CAUSES

155. Suicide by poison 1 1
156. Suicide by crushing 1 1
157. Other acute poisonings 1 1
158. Congestion 1 1
159. Burns 1 1
160. Accidental drowning 1 1
161. Traumatism by firearms 1 1
162. Traumatism by fall 1 1
163. Traumatism in mines and quarries 2 2
164. Traumatism by other crushing 1 1
165. Injuries by animals 2 1
166. Homicide by firearms 1 1
167. Other external violence 1 1
168-A. Legal electrocutions 1 1

XIV.—ILL-DEFINED DISEASES

169. Cause of death not specified or ill-defined 1 1
Total deaths from all causes among non-residents 25 22 28 25 25 24 27 39 24 16 17 139 76 206 60 25 85 230

TABLE No. 18
Giving Death Rate and Per Cent of Deaths from Different Causes.

CAUSE OF DEATH	ACTUAL NUMBER OF DEATHS			DEATH-RATE PER 1,000 LIVING			PER CENT. OF TOTAL MORTALITY		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
I. General Diseases.....	355	307	662	25.88	22.88	24.89	4.30	6.38	5.07
II. Diseases of the nervous system and organs of special sense.....	142	161	303	10.35	11.99	11.16	1.72	3.34	2.32
III. Diseases of the circula- tory system.....	195	150	345	14.22	11.17	12.71	2.36	3.12	2.64
IV. Diseases of the respira- tory system.....	115	205	320	8.38	15.26	11.78	1.38	4.26	2.45
V. Diseases of the digestive system.....	152	151	303	11.08	11.24	11.16	1.84	3.14	2.32
VI. Diseases of the genito- urinary system and its adnexa.....	178	173	351	12.98	9.16	11.09	2.16	2.56	2.30
VII. The puerperal state.....	17	15	32	1.24	1.12	1.18	.21	.31	.24
VIII. Diseases of the skin and cellular tissue.....	3	3	6	.22	.22	.22	.04	.06	.04
IX. Diseases of the organs of locomotions.....	3	1	4	.22	.07	.15	.04	.02	.03
X. Malformations.....	10	3	13	.73	.22	.48	.12	.06	.11
XI. Early infancy.....	85	90	175	6.20	6.70	6.44	1.03	1.87	1.34
XII. Old Age.....	19	3	22	1.39	.22	.81	.23	.06	.17
XIII. External causes.....	90	97	187	6.53	7.22	6.88	1.09	2.01	1.43
XIV. Ill-defined diseases.....	8	34	42	.58	2.53	1.66	.10	.71	.22
Total deaths from all causes	1,372	1,343	2,715	100.00	100.00	100.00	16.62	27.90	20.78

TABLE No. 19.

Giving Death-Rate and Per Cent. of Deaths at Different Age Periods.

AGE PERIOD	ACTUAL NUMBER OF DEATHS			DEATH-RATE PER 1,000 LIVING AT ALL AGES			PER CENT. OF TOTAL MORTALITY		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
Less than one day.....	30	26	56	.36	.54	.43	2.19	1.94	2.06
Between one day and one week.....	27	81	58	.33	.64	.44	1.97	2.31	2.14
First week.....	57	57	114	.69	1.18	.87	4.16	4.25	4.20
2nd, 3rd and 4th weeks.....	24	45	59	.29	.82	.45	1.75	2.61	2.17
First month.....	81	92	173	.98	1.91	1.32	5.91	6.86	6.37
1 to 3 months.....	45	65	110	.55	1.35	.84	3.28	4.84	4.05
3 to 6 months.....	43	75	118	.52	1.56	.90	3.13	5.58	4.85
6 to 12 months.....	59	68	127	.71	1.41	.97	4.30	5.08	4.68
First year.....	228	300	528	2.78	6.23	4.02	16.62	22.31	19.45
Second year.....	28	41	69	.35	.85	.53	2.04	3.05	2.54
Third year.....	7	18	25	.08	.37	.19	.51	1.34	.92
Fourth year.....	6	8	13	.06	.17	.10	.36	.60	.47
Fifth year.....	2	8	10	.02	.17	.08	.15	.60	.37
Total under 5 years.....	270	375	645	3.27	7.79	4.93	19.68	27.92	23.75
5 to 10 years.....	20	20	40	.24	.42	.31	1.46	1.49	1.47
10 to 15 years.....	13	26	39	.16	.54	.30	.95	1.94	1.44
15 to 20 years.....	20	39	59	.24	.81	.45	1.46	2.92	2.17
20 to 25 years.....	50	102	152	.60	2.13	1.16	3.64	7.59	5.60
25 to 30 years.....	48	92	140	.58	1.91	1.07	3.50	6.86	5.16
30 to 35 years.....	63	85	148	.76	1.77	1.13	4.59	6.32	5.45
35 to 40 years.....	59	103	162	.72	2.15	1.24	4.30	7.67	5.97
40 to 45 years.....	75	77	152	.91	1.60	1.16	5.46	5.73	5.60
45 to 50 years.....	60	97	157	.73	2.02	1.20	4.37	7.22	5.78
50 to 55 years.....	91	94	185	1.10	1.95	1.41	6.63	7.00	6.81
55 to 60 years.....	87	73	160	1.05	1.52	1.22	6.34	5.44	5.89
60 to 65 years.....	94	69	163	1.14	1.43	2.25	6.85	5.14	6.01
65 to 70 years.....	126	41	167	1.53	.83	1.28	9.19	3.05	6.15
70 to 75 years.....	126	28	154	1.53	.58	1.18	9.19	2.08	5.67
75 to 80 years.....	88	14	102	1.07	.29	.78	6.41	1.04	3.76
80 to 85 years.....	45	3	48	.54	.06	.37	3.28	.22	1.77
85 to 90 years.....	27	4	31	.38	.08	.24	1.97	.30	1.14
90 to 95 years.....	9	1	10	.11	.02	.08	.66	.07	.37
95 to 100 years.....	1		1	.01		.01	.07		.04
Over 100 years.....									
Total.....	1,372	1,343	2,715	16.62	27.90	20.78	100.00	100.00	100.00

TABLE No. 20.

Showing Number of Non-Residents Buried Here and Their Color.

NON-RESIDENTS	White	Colored	Total
	410	175	585

Showing the Number of Persons who Died Here and were Buried Elsewhere and Their Color.

TRANSIT PERMITS GRANTED	White	Colored	Total
	298	248	546

TABLE No. 21

*Showing the Number of Typhoid Fever Cases Reported to the Health Department, and the Number of Deaths for Each Month in 1912**

MONTH	Cases on hand at beginning of month.	Cases Reported in Month			Total under Treatment	Deaths in Month			Recovers in Month	Total Discharges	Cases on Hand at end of Month
		White	Colored	Total		White	Colored	Total			
January	9*	5	2	7	16	2	1	3	10	13	3
February	3	2	0	2	5	0	0	0	3	8	2
March	2	2	0	2	4	1	0	1	3	4	0
April	0	3	0	3	3	0	0	0	0	0	3
May	3	5	1	6	9	1	0	1	5	6	3
June	3	15	3	18	21	2	0	2	2	4	17
July	17	35	11	46	63	2	1	3	24	27	36
August	36	30	19	49	85	2	0	2	43	45	40
September	40	23	10	33	73	5	2	7	46	53	20
October	20	18	10	28	48	1	2	3	20	23	25
November	25	7	5	12	37	0	0	0	29	29	8
December	8	2	0	2	10	0	0	0	7	7	3†
Summary for the year		147	61	208	217	16	6	22	192	214	.....

*Cases on hand at the beginning of 1912.

†Cases on hand at the close of 1912.

TABLE No. 22

Showing Number of Cases of Diphtheria, Scarlet Fever and Measles Reported to the Health Department, and the Deaths from these Diseases During Each Month of 1912

MONTHS	DIPHTHERIA						SCARLET FEVER						MEASLES					
	Cases			Deaths			Cases			Deaths			Cases			Deaths		
	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total
January	25	2	27	1	1	2	21	3	24	0	0	0	9	4	13	0	0	0
February	12	0	12	1	0	1	18	1	19	0	0	0	26	0	26	1	0	1
March	10	0	10	0	0	0	6	2	8	0	0	0	87	16	103	0	0	0
April	6	2	8	0	0	0	4	1	5	0	0	0	230	17	247	0	0	0
May	6	0	6	0	0	0	5	0	5	0	0	0	152	11	163	0	0	0
June	2	1	3	0	0	0	4	0	4	0	0	0	22	3	25	0	0	0
July	5	2	7	0	0	0	8	2	10	0	1	1	3	0	3	0	0	0
August	10	1	11	0	0	0	18	4	22	0	0	0	1	0	1	0	0	0
September	17	3	20	1	0	1	40	7	47	0	0	0	1	0	1	0	0	0
October	34	10	44	3	0	3	70	7	77	0	0	0	1	0	1	0	0	0
November	28	6	34	0	0	0	65	3	68	0	0	0	20	3	23	0	0	0
December	20	4	24	0	1	1	35	2	37	0	0	0	219	27	246	0	0	0
Total	175	31	206	6	2	8	294	32	326	0	1	1	717	81	862	1	0	1

TABLE No. 28

Showing Number of Cases of Whooping Cough, Chicken Pox and Smallpox Reported to the Health Department, and the Number of Deaths for Each Month of 1912.

MONTHS	WHOOPIING COUGH						CHICKEN-POX						SMALLPOX					
	Cases			Deaths			Cases			Deaths			Cases			Deaths		
	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total
January	0	0	0	0	0	0	14	2	16	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	11	2	13	0	0	0	0	0	0	0	0	0
March	2	0	2	1	1	2	13	12	25	0	0	0	0	7	7	0	0	0
April	0	0	0	0	0	0	8	4	12	0	0	0	0	3	3	0	0	0
May	1	0	1	0	0	0	8	4	12	0	0	0	0	5	5	0	0	0
June	1	1	2	0	0	0	4	0	4	0	0	0	2	12	14	0	0	0
July	1	0	1	0	0	0	4	0	4	0	0	0	1	4	5	0	0	0
August	3	1	4	1	0	1	4	0	4	0	0	0	0	0	0	0	0	0
September	1	1	2	0	0	0	5	0	5	0	0	0	0	1	1	0	0	0
October	2	0	2	0	0	0	7	3	10	0	0	0	0	0	0	0	0	0
November	2	0	2	0	0	0	20	0	20	0	0	0	0	1	1	0	0	0
December	0	7	7	0	2	2	23	13	36	0	0	0	0	0	0	0	0	0
Total	13	11	24	2	3	5	121	40	161	0	0	0	4	33	37	0	0	0

*One patient was removed to the smallpox hospital, where she died. Death not recorded among city deaths.

TABLE No. 24.
*Meteorological Observations, 1913.**

MONTH	THERMOMETER			Rainfall in Inches
	Highest Degree	Lowest Degree	Mean Degree	
January	58	1	29	2.34
February	62	12	35	3.76
March	78	20	45	8.18
April	82	34	60	2.17
May	89	46	67	4.59
June	93	48	72	2.50
July	95	61	78	1.25
August	97	55	76	1.49
September	96	45	73	4.20
October	90	35	60	0.58
November	78	20	48	1.73
December	74	17	43	2.84
Total				35.63

*From reports of United States Weather Bureau.

REPORT OF MEDICAL INSPECTOR.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit herewith my report as Medical Inspector for the year 1912.

This report shows only a part of the work done by the Medical Inspector during the year. Several hundred children were inspected in school-rooms for scarlet fever and hundreds of vaccinations were inspected during the course of my work. It does not show any of the large amount of routine office work necessary in following closely the various contagious diseases.

The results obtained during the past year have been very gratifying, as will be shown in the following report of each contagious disease on which any work was attempted.

The following table shows the number of recorded visits made by the Medical Inspector during each month of the year and the diseases for which they were made.

Table Showing Visits Made by Medical Inspector in 1912.

MONTH	Typhoid Fever	Diphtheria	Scarlet Fever	Measles	Chickenpox	Smallpox	Vaccinations	Diarrhea and Enteritis	Other Causes	Total
January.....	8	84	83	21	7	.....	5	.....	10	178
February.....	33	18	66	27	7	23	42	.....	6	192
March.....	3	16	58	97	19	43	241	.....	9	487
April.....	8	13	254	14	31	39	.....	13	11	376
May.....	8	23	166	12	28	94	12	11	11	361
June.....	20	5	17	23	8	122	144	118	10	464
July.....	64	7	24	3	5	79	64	138	20	406
August.....	66	14	98	1	5	.....	6	59	22	271
September.....	47	27	168	2	6	7	57	87	23	375
October.....	32	58	244	8	5	.....	23	9	40	414
November.....	16	45	273	27	4	3	31	.....	33	482
December.....	2	53	184	254	11	.....	6	.....	8	498
Total.....	273	273	1,264	879	96	386	754	373	204	4,452

This table shows the number of visits made by the Medical Inspector for various causes. These numbers are not the same as the number of cases of the various diseases, which latter is shown in Tables Nos. 21, 22 and 23, as more than one visit was frequently paid to the same case.

To this should be added 400 visits for taking diagnostic cultures and 587 visits for taking release cultures for diphtheria, making a total of 5,439 visits made during the year; this includes those visits made by Mrs. Silverwood, who began work on measles during the last week in December.

As will be seen from the above tables, the work during the year 1912 has been unusually heavy for the Medical Inspector. This increased work was caused by the larger number of visits to smallpox and scarlet fever cases, the visits made necessary by the investigation of diarrhea and enteritis cases reported, and by the 800 measles cases. This was by far the heaviest year's work since the office of Medical Inspector was established, the nearest approach in number of visits being in 1910, when the Medical

Inspector had an assistant during the entire measles epidemic and 4,789 visits were made.

Table Showing Cultures Taken in 1912

MONTH	DIPHTHERIA CULTURES TAKEN		
	Diagnosis	Release	Total
January.....	42	50	92
February.....	7	51	58
March.....	39	23	62
April.....	0	32	32
May.....	31	5	36
June.....	4	14	18
July.....	7	22	29
August.....	8	30	38
September.....	40	31	71
October.....	114	112	226
November.....	53	130	183
December.....	55	87	142
Total.....	400	587	987

TYPHOID FEVER.

Typhoid continued its down downward course during the year 1912, 208 cases being reported with 22 deaths, a decrease of 43 cases and of 1 death as compared with 1911.

The year opened with 9 cases of typhoid on hand, of which 1 died, and closed with 3 cases on hand, this being the lowest number of cases on hand at the close of the year since the reorganization of the Health Department in 1906, and therefore, in all probability, the lowest ever recorded.

Table Showing the Decrease in Number of Cases, Deaths and Death Rate from Typhoid Fever for Each Year from 1907 to 1912, Inclusive.

YEAR	CASES REPORTED			DEATHS			DEATH RATE PER 100,000		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
1907.....	395	100	495	87	10	47	52.5	23.3	41.4
1908.....	388	106	494	39	18	57	54.6	41.5	49.7
1909.....	293	83	376	14	10	28	24.9	22.8	24.1
1910.....	197	66	263	15	13	28	18.6	27.5	21.9
1911.....	188	63	251	16	7	23	19.8	14.7	17.8
1912.....	147	61	208	16	6	22	19.4	12.6	16.8

Every case of typhoid reported during the year was promptly visited by the Medical Inspector, and the case history, sources of infection, and precautions to be observed were gone over thoroughly with the person in charge of the patient. Disinfectants were supplied where necessary. The Medical Inspector has attempted, whenever possible, by suggestions to physicians and to families, to get cases of typhoid sent to hospitals in the

city; in so doing, not only were the chances of secondary cases lessened, but the physicians had better facilities for treatment. Where it was not possible to have the patient sent to a hospital and the family were too poor to have a trained nurse, the Instructive Visiting Nurse Association was notified and responded readily to all calls. These nurses proved a great assistance in this work during the summer.

The Medical Inspector also aided the physicians in every way possible in suspicious cases, and many blood cultures and Widal's were taken for physicians in such cases. In this way diagnoses were obtained in two cases which later died and would certainly have gone to typhoid but for this work. One of these was that of a colored girl, ten years of age. When the Medical Inspector called, she was in an unconscious state, and her mother informed him that she was taken with a severe pain in the head and became delirious the same day. The child was in the middle room of a three-room house, with a father, mother and five other children. Flies were swarming freely from the unconscious child to the dining table, which was in the room with the patient, and no precautions were taken to prevent the spread of the disease. The physician was seen at once, told of the danger to the other members of the family, and asked to send the child to the City Hospital, which he promptly did. Being doubtful about the diagnosis in the case, a blood culture and Widal were taken by the Medical Inspector as soon as the child reached the City Hospital; this showed the presence of a diplococcus in the red blood cells, and the diagnosis of epidemic cerebro-spinal meningitis was later confirmed by a spinal puncture.

Twenty cases of typhoid were reported during the first five months of the year, this being one more case than was reported for the corresponding period of 1911. Five deaths were reported as due to typhoid during this period, one of which was that of a case, carried over from 1911. Deducting this death, the case fatality for the period was 25 per cent. One-half of the cases reported during this period were probably not typhoid, and two of the deaths during this period were almost certainly due to other causes.

That part of the city north of James river—that is, the old city of Richmond—was remarkably free from typhoid during 1912. Excluding the cases contracted outside of the city, only 116 cases were reported in that part of the city during the year. There were 17 deaths from typhoid in the northern part of the city, 6 of which were those of cases contracted outside the city. The physicians were doubtful as to the diagnosis (report of Chief Health Officer) in 6 other cases that died. If all deaths of doubtful cases (6) and all deaths of cases contracted outside the city (6) be excluded, the death rate from typhoid in North Richmond during 1912 was 4.1 for 100,000 population. Counting all deaths reported as typhoid, the death rate was by far the lowest ever recorded in the older part of Richmond.

The cases of typhoid were well scattered in the city north of James river. The chief center of infection here was in the western part of the city, below Main street. Much of this territory had not been sewerred and many of the privies were in poor condition. Sewers in that part of the city were completed during the summer, and proper sewer connections will probably rid that section of the disease. More cases of typhoid and more

deaths were reported in South Richmond than in any one of the three years since annexation. The disease was of a very severe type, as shown by the high case fatality, 5 of 39 cases who contracted the disease there having died, and another death occurred there in which the chances were equal for infection inside and outside the city. Most of the patients were very ill, the disease being much more severe than in the northern part of the city.

One case of typhoid was reported in South Richmond in January, 1912. That part of the city then remained free from the disease until June 14th, when another case was reported. Six (6) cases were reported in June, 13 in July, 3 in August, 7 in September, 9 in October and 1 in November, making a total of 40 cases. These cases were located chiefly in that part of the city east of Hull street and south of Cowardin avenue, the chief center being in the neighborhood of 5th and 6th streets. A thorough study was made of all cases reported.

Two of the patients had been out of the city near the time when infection took place, and one of these was recorded as 75 per cent. and the other as 50 per cent. imported. Five of the cases were secondary to previous ones in the house. Four of these had contracted the disease before the Health Department was notified, and the fifth, a small boy, contracted it from a sister. One case was probably contracted while visiting a reported case. There was nothing to indicate water infection. 26 of the patients used Manchester public water only; 8 used Manchester public water at home and North Richmond water at their places of business; 1 used spring water; 1 used spring and Manchester public water; 2 used well water alone; and 2 used well water at home and Manchester public water at their places of business.

The majority (21) of the patients used no milk; 6 used some Rennie Dairy milk; 6 used Richmond Dairy milk; 1, Richmond and Rennie; 6, milk from various sources. Most of the patients used ice from one dealer; this dealer supplies all the ice to that part of the city from two plants; a further study of the cases showed them to be nearly equally distributed between the plants. None of the patients had recently eaten raw oysters, and the vegetable supply was derived from various sources, not more than two of the patients having gotten vegetables from the same source. No ice cream or fruit stand was at any time under suspicion. A study of sanitary conditions threw much light upon the origin of the cases. The better sewered section of the city showed few cases. Thirteen (13) of the cases occurred in houses having good plumbing. The plumbing was fair in 9 and poor in 8 of the houses. Ten (10) of the cases were in houses which had no sewer connections but had old privies; 9 of the 10 were found in very poor condition. In one place the privy box was entirely uncovered, and another privy had no box. All closets found in a poor condition were immediately ordered repaired, but there were undoubtedly many others in as poor condition as the above. The water pipes were not large enough to properly flush the closets on one entire square, and many of the closets inspected did not have water on the premises. The lack of proper facilities for disposing of sewage and flies accounted for the increased typhoid in South Richmond during 1912.

Trunk sewers have been completed in the section most affected, and with proper connections will probably lessen typhoid in that part of the city during the coming year.

Table Showing the Case Fatality of Typhoid Fever in 1912.

CASES	No. of Cases	No. Cases Terminated	Deaths	Case Fatality Per Cent.
On hand January 1, 1912.....	9	9	1	11.1*
Reported in 1912.....	208	208	21	10.2
Total under treatment in 1912.....	217	214	22	10.3
Cases contracted in 1912:				
White.....	147	145	16	11.1*
Colored.....	61	60	5	8.3
Contracted in Richmond (estimated)	156	153	15	9.8
Contracted out of Richmond (estimated).....	53	52	6	11.5
Corrected figures for 1911, from final outcome of all cases reported during the year*.....	251	251	23	9.2

*When the 1911 annual report was submitted, 9 of the reported cases during that year were still on hand. One (1) of them subsequently died.

Table Showing Deaths and Death Rates from Typhoid Fever in 1912.

	No. of Deaths	Death Rate Per 100,000
Total deaths.....	22	16.8
White.....	16	19.4
Colored.....	6	12.5
Contracted in Richmond.....	16	12.2
White.....	11	13.3
Colored.....	5	10.4
Contracted out of Richmond.....	6	4.6
White.....	5	6.1
Colored.....	1	2.1

Table Showing Cases of Typhoid Fever Contracted In and Out of the City During 1912.

Cases certainly contracted in city.....144

Cases in which information was not conclusive:

5 probably contracted in city (probability 75 per cent.) 4

11 with equal probability (probability 50 per cent.)... 5

7 possibly contracted in city (probability 25 per cent.) 2

Total cases contracted in city (known and estimated)...155 74.5 per cent

Cases certainly contracted out of city (known and estimated) 41

Cases in which information was not conclusive:

23 cases (see above) less 11 estimated as contracted in the city	12
---	----

Total cases contracted out of city (known and estimated). 53 25.5 per cent

DIPHTHERIA.

Two hundred and six (206) cases of diphtheria were reported during 1912, which was 62 less than were reported during 1911. There were 8 deaths from the disease, which was 5 less than in the preceding year.

A close study was made during the year of all sources of infection. The milk was at no time under suspicion.

The oldest diphtheria patient during 1912 was a white woman, 66 years of age, who had a severe tonsillar infection. The youngest patient was a baby 5 weeks old, who contracted the disease from a sister, who was found to be a carrier of diphtheria germs.

The number of cases reported in the colored race was less than in the white; only 31 cases being reported in the colored race to 175 in the white race. Eighty-seven (87) of the cases were males; 119, females.

The Medical Inspector has centered his work in the prevention of this disease upon the finding of carrier cases. Cultures were taken from every suspicious case with which he came in contact. In this way many carrier cases were located that would otherwise have escaped recognition. Cultures were taken from all the children in three schoolrooms and from a part of the children in two other rooms during the year. An infection which would probably have proved a serious one was thus checked. A child in one of the colored schoolrooms was found, by the teacher in charge, to have a white membrane in its throat. She notified the principal of the school, who sent the child home and notified the Health Department. The case was found to be diphtheria and was quarantined by the Medical Inspector. Cultures were then taken from all the children in the schoolroom and the room closed and fumigated. Five of the children were found to be infected with diphtheria germs. These children were isolated and one of the five, a girl of 9 years old, was found to have had a severe attack of tonsillitis two weeks before, for which she was treated by her mother. She recovered in five days and returned to school, and, undoubtedly, infected the others in her room. A young child was found in her home who had suffered from a chronic nasal discharge for six or seven months, a culture from which proved positive for diphtheria. This child had probably been the source of infection in the sister and in one other case of diphtheria reported near its home a short time previous. Many other carrier cases were discovered during the year. These cases were, in most instances, reported and quarantined as diphtheria, and this accounts, in part, for the low case fatality during the year.

Many of the physicians in the city have frequently requested the Medical Inspector to see cases which they suspected of being diphtheria. One child was found in this way who had undoubtedly been the source of infection in four cases in the neighborhood.

Of the cases reported during the year, 45 were of the laryngeal type. There was some doubt as to the diagnosis in some of these cases, and it is probable that 8 of them were cases of simple croup. The Medical Inspector has responded at once to all calls in cases of this type. There were no deaths without intubation in reported cases of this type of the disease. One death would certainly have occurred but for prompt work. When the Medical Inspector and Diphtheria Consultant arrived at the home, the patient was found in a dying condition, with eyes rolled upward, muscles relaxed, lips blue, pulseless, and barely gasping for breath. It was immediately intubated and its life saved after an hour's work in reviving it.

Antitoxin was administered by the Medical Inspector in many of the cases, some of the physicians preferring to have this done by one accustomed to giving it rather than give it themselves. A large part of the cases were seen in consultation with the physicians, thus making extra work for the Medical Inspector. One child was given antitoxin the fourth time in five years. He has a weak heart and showed no symptoms which he has not shown with any acute infection.

Three (3) of the 8 deaths resulting from diphtheria during 1912 were of the tonsillar type; 1 was nasal, and 4 were laryngeal. In one of the three tonsillar cases the disease was not recognized by the physician until too late for antitoxin to affect it; in another the physician was not called until the child was practically moribund; the third death was that of a baby who was very weak from a previous attack of summer diarrhea, and although it received a dose of antitoxin early in the course of the disease, it did not have sufficient vitality to withstand the attack. The death from nasal diphtheria was that of an infant five weeks old. The disease had lasted four days when the physician was called and the child died the same day antitoxin was administered. Three of the four laryngeal deaths were not seen by the Medical Inspector. The one laryngeal death seen by the Inspector was that of a patient who had gone untreated for nine days and died from heart failure, while apparently doing nicely, 24 hours after the tube had been removed. The case fatality for laryngeal cases seen by the Medical Inspector was 2.4 percent.

Summary of Diphtheria Statistics:

Total cases reported	206
Total deaths	8
Case fatality, percent	3.9
Death rate per 100,000.....	6.1

SCARLET FEVER.

There was a decided increase in the number of cases of scarlet fever in 1912 over 1911, there having been 326 cases reported in 1912 against 182 in 1911. The disease was of a very mild type, only one death being reported. The Medical Inspector, while investigating reported cases, discovered many other cases in which the disease was so mild that no physician had been called. Several children were found peeling who had been seen

by physicians, but the disease was so mild that a correct diagnosis had not been made.

Scarlet fever began to spread first in the western part of the city below Main street in August. This was the chief center of infection during the year. Scattered cases were reported over the entire city, but in no other part was the infection so general. Two warnings were sent to physicians early in October, requesting them to be on the lookout for scarlet fever cases in their practice.

The children in several schoolrooms were inspected for peeling, and several children with sore noses were sent home and advised to call their physicians, but no children with peeling hands were found.

The counties surrounding Richmond were heavily infected, and this aided the spread of the disease in the city. This was the only disease in which trouble was experienced in keeping quarantine. The mild character of the disease made it almost impossible to keep the children separated in the home, and in one home an entire family of 5 children had it, and in several other families there were 2 or 3 cases. The older people often said that the disease was so mild they did not care if the other children took it. Two persons were summoned to Police Court and fined \$10.00 each for breaking quarantine. One of these was a negro girl who broke quarantine in North Carolina and came to the city while peeling. The physician in charge in North Carolina notified the Health Department that she had come to Richmond. She was located by the Medical Inspector, quarantined until all peeling had subsided, and then summoned to appear in court for coming into the city in an infectious condition. The other person fined was a father, who allowed his child to play on the street in spite of the warning of the Medical Inspector.

Thirty-two (32) cases were reported in the colored race to 294 in the white. The one death from scarlet fever was that of a negro baby who had a severe attack of summer diarrhea when first seen by the physician. There was some peeling on the hands and the physician was not sure whether the peeling was from scarlet fever or summer diarrhea.

Summary of Scarlet Fever Statistics for 1912:

Total cases reported	326
Total deaths	1
Case fatality, percent	0.3
Death rate per 100,000.....	0.8.

MEASLES.

Measles made its usual, seasonal, appearance first among the students of the University College of Medicine in the latter part of January, 1912, having been brought to the city by a student upon his return from his Christmas vacation. From the University College of Medicine the disease spread to the Medical College of Virginia, Massey Business College, William Ruffner, John Smith, Springfield and Chimborazo Schools, and two churches—East End Baptist and Broadbush Memorial.

Five hundred and eighty-one (581) cases were reported during the infection in the first half of the year, with 1 death. Many of the cases were of a very mild type, and some of those seen by the Medical Inspector were what is known as "German Measles."

The city remained comparatively free from measles from June until November. Several cases of a severe type were reported during the latter part of that month. Upon the report of 7 cases from a small private school, the Chief Health Officer issued a warning to the people of the city, through all the local newspapers, to be on the lookout for another measles epidemic. A circular letter was sent to all the physicians in the city, requesting them to immediately report all cases of measles with which they came into contact to the Health Department. Reports of cases soon began to increase, and 246 cases were reported during the month of December. Nineteen (19) of these were among street car conductors and motormen and the disease was scattered at once over the entire city. Most of the cases reported during December were in the western half of the city. Measles cases in 1911 were almost entirely confined to Church Hill and Fulton, and most of the cases reported in 1912 have been in that part of the city, so that it is likely there will be fewer cases there during the 1913 epidemic. There have been fewer cases of measles in the western half of the city, Jackson Ward, Fairmount and Manchester since 1910, and these will probably be the chief center of infection during the epidemic just beginning.

The one death from measles during 1912 was that of a white woman who contracted pneumonia with it; she was nursing four measles cases in her home when taken ill. The low case fatality is accounted for by four factors: (1) the location of the disease, most of the cases being in the better part of the city; (2) the age of the patients, few babies having contracted it; (3) the mild type of the disease; and (4) the better care given the cases because of the instruction and warnings of the Health Department.

The following summary for 1912 shows the lowest case fatality ever recorded in the city:

Total cases reported	852
Total deaths	1.
Case fatality, percent	0.1
Death rate per 100,000	0.8

SMALLPOX.

Smallpox made much more work for the Medical Inspector during the spring and summer months of 1912 than during the year 1911. A mild type of the disease was very prevalent throughout Virginia and North Carolina and infected persons were constantly coming into the city. The disease, however, was being kept successfully in check by vaccination of all persons who might have been exposed until this policy was abandoned by the Board of Health. The disease showed a decided case increase and vaccinators were again put to work and the disease soon checked.

The first case reported during 1912 was that of a young married woman who lived on West Clay Street. Upon investigation it was found that a

brother of hers, who had come from North Carolina, had broken out with a mild eruption, had seen no physician, and had returned to North Carolina before his sister developed the disease. A sister living in the house had also had a mild attack of smallpox and was nearly well when seen. The family was removed to the smallpox hospital. The patient gave birth to a child while at the hospital. It was vaccinated immediately after birth. The vaccination was successful and the child showed no sign of the disease.

The sister of the reported case had worked for a week at one of our largest tobacco factories after she broke out with smallpox. She gave the disease to a negro who was employed at the factory. This negro went to work in a tobacco factory on South 10th Street. He was out of the factory for three days while breaking out with smallpox, and then returned to his work. He gave the disease to two people who worked with him in the factory and probably to two persons in the neighborhood in which he lived and one negro who was employed at Shockoe Slip.

The negro who was employed at Shockoe Slip had a mild case of smallpox and returned to work within a week from the day he broke out and gave the disease to two people. One of these patients called a physician, who reported the case at once to the Health Department, and he was quarantined. The other patient had a colored physician who did not recognize the nature of the complaint. The patient was visited by all the members of a colored secret society, three of whom contracted the disease. Two of the three cases were reported and the third was picked up by a policeman while on the street after the Medical Inspector had spent three hours searching for him and had notified the police to be on the lookout for him. One person contracted the disease from one of these cases.

The infection which caused the most trouble was at one of our largest hotels. A negro who was employed in the hotel basement broke out with a mild case of small pox and continued at his work. A boy six years of age who lived in his home on West Moore Street contracted the disease and a physician was called to see him. The Medical Inspector was called to see the case, diagnosed it as smallpox, found that the original case was working at the hotel, and immediately took him home and placed him under quarantine. Vaccinators were put to work in the hotel and discovered two mild cases, while a third was discovered by the Medical Inspector, all being at work in the hotel. All were sent to the smallpox hospital. All persons in the hotel who had not previously been vaccinated were vaccinated and quarantined in their homes. Three other cases were contracted from this source. One of these was not discovered until a brother contracted the disease and called a physician. This one case caused eight persons to have the disease.

Two cases occurred among the employees of the Seaboard Air Line Railway and were probably contracted from some mild case while at work on the railroad outside the city. Several foci of infection were discovered, the source being in each instance a mild, unreported case in an adult negro. Thirty-seven (37) cases in all were reported. This does not, however, include 6 persons who had recovered from mild cases of the disease when discovered. In 4 other cases the source of infection was a mild case which had recovered and left the city without being discovered.

One death was due to smallpox. The patient, a very fleshy negro woman, age 66 years, had a very severe type of the disease, the eruption being confluent on her face and hands. She was taken to the smallpox hospital, where she later died, and her death was not recorded among the city deaths. This was the second death from smallpox at the smallpox hospital since 1906.

The Medical Inspector desires to express his thanks to the Board of Health for providing an automobile in place of the horse and buggy formerly used. This has enabled him to pay calls more promptly than was possible with the horse. While the work is much harder on account of running the automobile, the Medical Inspector feels that the increased efficiency in his work is sufficient to compensate for the amount of extra labor entailed. Without the automobile, it would have been impossible to have made the visits previously recorded in this report.

The Medical Inspector desires to express his thanks to physicians of the city for the hearty co-operation which he has received from them at all times during the year.

Respectfully submitted,

C. C. HUDSON, M. D.,
Medical Inspector.

REPORT OF BACTERIOLOGIST.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit herewith my report as City Bacteriologist for the year ending December 31, 1912. There were 2,972 diagnostic specimens examined during the year, a decrease of 98 specimens from 1911, as follows:

	1911	1912
Diphtheria		
{ Diagnosis	832	1,007
{ Release	967	691
{ Total	1,799	1,698
Typhoid Fever		
{ Widal tests	320	341
{ Diazo tests	63	87
{ Other tests	10	43
{ Total	393	471
Tuberculosis	805	783
Malarial Fever	78	108
Other diagnostic tests		12
Total examinations of all kinds	3,070	2,972

In addition to the diagnostic work of the laboratory, several samples of water and disinfectants were examined and 1,663 samples of milk.

DIPHTHERIA.

As shown in the above table, there were 101 fewer diphtheria specimens examined during 1912 than 1911. There was an increase of 175 in the number of diagnostic specimens, but a decrease of 276 in the number of release cultures examined. The decrease in the number of release cultures submitted was apparently due to two causes—first, there were 62 fewer cases of diphtheria than in 1911; and secondly, the average period during which the diphtheria bacilli persisted was shorter, making fewer cultures necessary.

The average period of quarantine during 1912 was 14.8 days, the shortest period being 3 days and the longest 41 days. The shortest periods of quarantine were principally in cases reported without bacteriological examination. There was an average of 3.8 release cultures taken from each case (counting only those cases which proved to be diphtheria bacteriologically).

The direct swab and five-hour culture examinations have been continued in all cases where requested, frequently giving a much earlier diagnosis than could have been obtained by the regular method.

Showing Results of Direct Swab Examinations.

RESULT OF DIRECT SWAB EXAMINATIONS	RESULT OF REGULAR EXAMINATION		
	Positive	Negative	Doubtful
Positive	2	0	0
Negative	2	18	0
Doubtful	1	2	0
Total	5	20	0

Showing Results of Five-Hour Culture Examinations.

RESULT OF FIVE-HOUR EXAMINATIONS	RESULT OF REGULAR EXAMINATIONS		
	Positive	Negative	Doubtful
Positive	5	0	0
Negative	4	25	0
Doubtful	1	1	0
Total	10	26	0

TYPHOID FEVER.

Unsatisfactory results with the Widal reaction and excellent results with the blood culture were again obtained during 1912. The blood culture has been adopted more generally, 40 cultures having been examined in 1912, while there were only 8 examined during 1911. Its use, however, is far from being as general as it should be. Regular outfits are now furnished containing the necessary culture media and a good syringe.

The blood culture is most reliable early in the course of the disease, when the diagnosis is chiefly needed, while the Widal reaction usually appears later, if at all. In 25 of the 40 cases in which blood cultures were taken, specimens for the Widal reaction were also submitted. The following table shows a comparison of the results:

RESULTS OBTAINED FROM BLOOD CULTURE	RESULTS OF WIDAL REACTION		
	Positive	Negative	Atypical
Positive for Typhoid Fever	1	1	1
Negative for Typhoid Fever	*2	14	5
Meningococcus present .....	.....	1	.....

*One of these cases had been running for seven weeks and the other for five weeks when the cultures were taken, so that negative results were expected. The blood culture is not reliable after 2 or 3 weeks. Furthermore, in one of these cases the amount of blood was too small for satisfactory examination.

Of the 40 cultures examined:

Growth was obtained in 7 cultures or 17.5 percent.

No growth was obtained in 33 cultures or 82.5 percent.

Of the 7 cases from which a growth was obtained:

The typhoid bacillus was recovered from 4 cases.

The paratyphoid bacillus was recovered from 1 case.

The meningococcus was recovered from 1 case.

The staphylococcus aureus was recovered from 1 case.

The subsequent clinical history bore out the bacteriological findings in every one of these cases.

The 33 cultures giving no growth were obtained from 32 cases, 2 cultures being taken in one case.

27 of these cases proved negative clinically.

3 cases were doubtful.

2 cases were diagnosed as typhoid fever clinically, though 2 negative blood cultures were obtained from one of these.

If we consider all of the doubtful cases to have been typhoid fever, then 34 of the 39 cases or 87 percent were correctly diagnosed. If we consider only the last two cases to have been typhoid fever, then 37 cases or 95 percent were correctly diagnosed. An accuracy of 90 to 95 percent is what is generally claimed for the blood culture when properly taken.

1912 MONTHS	DIPHTHERIA				TYPHOID FEVER				TUBERCU- LOSIS				Total Examinations of all kinds						
	PURPOSE OF EXAMINATION	RESULT OF EXAMINATION			Test	RESULT OF EXAMINATION			Total	Positive	Negative	Total							
		Positive.	Negative	Atypical		Specimen Unsatisfactory	Total												
January.....	Diagnosis....	18	104	3	.....	182	Widal....	2	9	2	.....	16	24	89	63	.....	2	2	263
	Release.....	7	50	.....	.....	119	Diazo....	1	2	.....	.....	15	16	55	71	.....	.....	.....	205
February.....	Diagnosis....	5	56	.....	1	.....	Widal....	1	9	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Release.....	17	38	.....	2	115	Diazo....	.....	2	.....	.....	10	16	50	66	.....	.....	2	193
March.....	Diagnosis....	6	73	.....	2	.....	Widal....	.....	5	4	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Release.....	7	27	.....	.....	73	Diazo....	.....	1	.....	.....	16	10	65	75	.....	.....	6	170
April.....	Diagnosis....	4	34	.....	1	.....	Widal....	.....	13	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Release.....	8	26	.....	.....	62	Diazo....	.....	1	.....	.....	12	12	66	64	.....	1	7	150
May.....	Diagnosis....	5	46	.....	.....	.....	Widal....	.....	11	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Release.....	3	8	.....	.....	40	Diazo....	.....	.....	.....	.....	44	17	37	64	.....	.....	7	145
June.....	Diagnosis....	3	22	.....	.....	.....	Widal....	.....	31	7	2	.....	.....	.....	.....	.....	.....	.....	.....
	Release.....	5	10	.....	.....	48	Diazo....	.....	4	.....	.....	74	15	57	72	.....	.....	15	209
July.....	Diagnosis....	5	15	1	.....	.....	Widal....	8	47	13	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Release.....	13	14	.....	.....	69	Diazo....	5	6	.....	.....	73	18	37	55	.....	5	24	226
August.....	Diagnosis....	9	27	1	.....	.....	Widal....	1	57	12	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Release.....	10	22	.....	.....	.....	Diazo....	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Bacteriological Laboratory—Summary of Diagnostic Work for 1918—Continued.

1912 MONTHS	DIPHTHERIA				TYPHOID FEVER				TUBERCULOSIS		MALARIA		Total Examinations of all Kinds			
	PURPOSE OF EXAMINATION	RESULT OF EXAMINATION			TEST	RESULT OF EXAMINATION			RESULT	RESULT	Positive	Negative		Total		
		Positive	Negative	Atypical		Specimen Unsatisfactory	Positive	Negative							Atypical	Specimen Unsatisfactory
September.....	Diagnosis.....	19	61	.....	Widal.....	.....	5	28	1	18	28	4	10	14	216
	Release.....	11	27	.....	Diazo.....	.....	8	.....	.....	.....	.....	.....	.....	.....	416
October.....	Diagnosis.....	38	141	2	Widal.....	2	26	8	.....	6	48	2	11	13	.....
	Release.....	40	89	.....	Diazo.....	1	4	.....	.....	.....	.....	.....	.....	.....	.....
November.....	Diagnosis.....	22	103	2	Widal.....	8	14	8	.....	9	36	.....	10	10	372
	Release.....	59	102	1	Diazo.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....
December.....	Diagnosis.....	15	101	2	Widal.....	1	8	2	.....	18	51	.....	2	3	202
	Release.....	35	60	.....	Diazo.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....
Totals for 1912	Diagnosis.....	946	.....	.....	Widal.....	.....	.....	.....	347	Positive.....174	.....	Positive.....96	.....	.....	2,866
	Release.....	691	.....	.....	Diazo.....	.....	.....	.....	37	Negative.....569	.....	Negative.....12	.....	.....	.....
	Total.....	1,637	.....	.....	Total.....	.....	.....	.....	378	Total.....783	.....	Total.....108	.....	.....	.....

In addition to the above routine examinations the following examinations were also made:

Diphtheria—Direct Swab Examinations.....	25
Diphtheria—Five Tube Cultures.....	86
Typhoid—Widal.....	40
Typhoid—Peterson Blood Cultures.....	1
Para-Typhoid Fever Agglutination Tests.....	8
Other Diagnostic Tests.....	12
Total.....	2,972

In addition to the above routine examinations the following examinations were also made:

Diphtheria—Direct Swab Examinations.....
Diphtheria—Five-Hour Cultures.....
Typhoid Fever—Blood Cultures.....
Para-Typhoid Fever Agglutination Tests.....
Other Diagnostic Tests.....

Total.

FLIES.

As part of the fly campaign last summer, a number of experiments were conducted in the laboratory for the purpose of finding a substance, both economical and practical, which would destroy maggots under the natural conditions in which they breed. Various disinfectants and other substances were tried, but nothing satisfactory has as yet been found.

Experiments were conducted with Mr. Tuck, Chief Sanitary Officer, with a view to determine whether or not pupae could live through the winter. On November 3rd a number of jars containing pupae, collected the previous day, were placed in the refrigerator, the temperature of which varied from 40 to 50 degrees F. Our plan was to take one of the jars out of the refrigerator every two weeks and incubate it at a higher temperature, so as to determine how long the pupae would remain alive.

On November 21st, 18 days later, the first jar was taken out and placed in the incubator at 98 degrees F., and by the following day a number of flies had been hatched. The jars in the refrigerator were examined on November 25th, and no change noted, but when examined again on the 28th, a number of the flies in every jar had been hatched, and by the 30th, 80 or 90 percent of all the pupae had hatched. The remainder never hatched, even though kept at a warm temperature for a week or more.

Several of the jars were left in the refrigerator, and most of the flies in these remained alive for one or two weeks and a few lived for as long as three weeks. They appeared sluggish and scarcely alive when taken from the refrigerator, but became lively in less than an hour after. Most of them died in a few hours more, however.

This experiment, though not accomplishing its original purpose, did demonstrate the fact that pupae hatch at a lower temperature than is commonly supposed, and also showed that flies will live at low temperature, without food, for several weeks.

BACTERIOLOGICAL EXAMINATION OF MILK.

During the year 1912, bacteriological examination was made of 1,663 samples of milk and cream, as follows:

Jan.	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
144	128	155	177	154	117	151	127	114	151	133	112.....	1,663

Of the 1,663 samples, 287 were samples of cream and of milk used for churning only, and 1,376 were samples of regular market milk. These samples are classified in different tables, as cream usually contains more bacteria than milk, and the milk used for churning is for the most part that which comes from the greatest distance, being frequently 24 hours or more old when it arrives. All milk, whether used for churning or not, comes from inspected places. But sometimes milk having too high a temperature is allowed to be churned instead of being returned, and milk which has been excluded because of high bacterial counts may be used for churning until conditions have been corrected and subsequent samples show it to be

again suitable for regular use. For these reasons the churning milk and cream have (as would be expected) a higher bacterial count and are therefore classified separately.

TABLE A.

Bacteriological Examination of Regular Market Milk, Showing the Number of Samples in Each Class.

CLASS	January	February	March	April	May	June	July	August	September	October	November	December	Total
Below 10,000	75	63	61	82	62	28	18	17	34	75	48	15	578
10,000 to 50,000	35	35	39	53	34	38	52	33	40	36	49	42	486
50,000 to 100,000	1	3	9	7	8	10	19	21	10	5	15	19	127
100,000 to 250,000	2	3	1	7	11	8	16	17	5	5	8	15	98
250,000 to 500,000	3	3	1	4	4	4	3	3	10	2	2	8	47
500,000 to 1,000,000	0	0	2	0	2	1	1	3	2	3	1	4	21
1,000,000 to 5,000,000	0	0	1	1	1	1	2	1	1	2	2	1	17
5,000,000 and over	0	0	0	0	0	1	0	4	0	0	0	0	2
Number of samples	116	106	115	154	122	91	114	99	102	128	125	104	1,376
Average air temperature at 8 A. M. in Degrees F	30	37	41	56	66	68	73	72	65	54	34	41	.....

TABLE B.

Bacteriological Examination of Regular Market Milk, Showing the Percentage of Samples in Each Class.

CLASS	January	February	March	April	May	June	July	August	September	October	November	December	Percentage of Total in Each Class
*Below 10,000	64.6	59.5	53.1	53.3	50.8	30.8	15.8	17.2	33.3	58.6	38.4	14.4	42.1
10,000 to 50,000	30.2	33.3	33.9	34.4	27.9	41.7	45.6	33.4	39.2	28.1	39.2	40.4	35.4
50,000 to 100,000	1.3	2.8	7.8	4.5	6.6	11.0	16.7	21.2	9.8	3.9	12.0	18.3	9.2
100,000 to 250,000	1.7	2.8	0.9	4.5	9.0	8.8	14.0	17.2	4.9	3.9	6.4	14.4	7.1
250,000 to 500,000	2.6	2.8	1.3	2.6	3.3	4.4	5.3	3.0	9.8	1.6	1.6	7.7	3.4
500,000 to 1,000,000	0.0	1.0	1.7	0.0	1.6	1.1	1.3	3.0	2.0	2.3	1.6	3.8	1.1
1,000,000 to 5,000,000	0.0	0.0	0.7	0.7	0.8	1.1	1.7	4.0	1.0	1.6	1.6	1.0	1.2
5,000,000 and over	0.0	0.0	0.0	0.0	0.0	1.1	0.0	1.0	0.0	0.0	0.0	0.0	.1

TABLE C.

Bacteriological Examination of Cream and Milk used for Churning on y, Showing the Percentage of Samples in Each Class.

CLASS	January	February	March	April	May	June	July	August	September	October	November	December	Percentage of Total in Each Class
*Below 10,000	57.2	50.0	45.0	21.3	21.9	3.8	5.4	3.6	8.3	30.4	37.5	0.0	25.1
10,000 to 50,000	21.4	27.3	17.5	21.8	25.0	19.3	16.2	25.0	25.0	11.7	37.5	37.5	22.3
50,000 to 100,000	3.6	0.0	7.5	4.3	12.5	11.6	2.7	7.1	8.3	13.1	0.0	12.5	7.0
100,000 to 250,000	7.1	9.1	7.5	21.8	11.1	7.7	18.9	3.6	8.3	8.7	0.0	25.0	9.8
250,000 to 500,000	0.0	0.0	5.0	4.3	12.5	3.8	16.2	14.3	0.0	8.7	12.5	0.0	7.3
500,000 to 1,000,000	7.1	0.0	10.0	4.3	3.1	3.8	18.9	10.7	8.4	0.0	0.0	0.0	7.0
1,000,000 to 5,000,000	3.6	13.6	7.5	4.3	18.8	46.2	21.7	21.4	25.0	17.4	12.5	12.5	17.0
5,000,000 and over	0.0	0.0	0.0	17.4	3.1	3.8	0.0	14.3	16.7	0.0	0.0	12.5	4.5
Number of samples	28	22	40	23	32	26	37	28	12	23	8	8	287

*The numbers refer to bacteria per cubic centimeter.

The high bacterial standard of previous years has been maintained and improved as shown in the table below. The real improvement, however, is greater than would appear from the table, as high bacterial counts have been followed up more closely than formerly. Instead of shutting out milk on one high bacterial count, another sample is immediately obtained, and the milk is not excluded unless this sample is likewise high. As the second sample is frequently high also, the proportion of high counts is considerably increased.

Table Showing the Bacterial Index of the Market Milk Supply of Richmond For the Years 1910, 1911 and 1912.

YEAR	BACTERIAL INDEX												
	Jan	Feb	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1910	85.4	86.7	82.0	83.1	82.0	73.7	74.7	81.3	84.2	86.8	85.2	88.0	82.8
1911	89.5	88.3	91.3	90.3	76.2	81.8	77.6	79.4	83.1	84.4	88.0	88.5	85.0
1912	93.8	92.7	90.1	90.4	86.0	81.8	77.4	72.4	80.1	89.1	86.2	73.2	85.9

Respectfully submitted,

A. H. STRAUS,
City Bacteriologist.



REPORT OF CONSULTANT IN DIPHTHERIA.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit herewith my report of cases of laryngeal diphtheria seen for the Health Department for the year ending December 31, 1912, also appended tabulated statement of laryngeal cases seen for the Health Department for six years, 1907-1912, inclusive.

INTUBATED			NOT INTUBATED				TOTAL			Case Fatality, Per Cent.
Recovered	Died	Total	Case Fatality Per Cent.	Recovered	Died	Total	Recovered	Died	Total	
7	2	9	22.2	7	.....	7	14	2	16	12.5

The small number of intubation cases occurring this year is accounted for by two conditions; first, this has been a comparatively light diphtheria year, and, second, the early and liberal administration of antitoxin, a point upon which the Department insists in no uncertain terms. The usual proportion of cases has shown laryngeal complications, but for reasons above mentioned have escaped intubation. The cases intubated have usually been those to which the physician was called late, and antitoxin was therefore not administered in time to prevent the development of conditions leading to laryngeal stenosis. Although intubation may be promptly had at all times, the lamentable fact still remains that a few physicians have permitted their cases to die the ignominious death of strangulation from laryngeal stenosis due to diphtheria. May the time soon come when such a catastrophe will be unknown to the medical profession of our city. We still occasionally hear of an incidence in which the laryngeal complication in diphtheria is treated by that cumbersome, complicated, bloody, antiquated operation, tracheotomy, instead of by simple, safe intubation, but, happily, this barbarous method of treatment is now seldom resorted to.

One of the cases that died was hopeless when first seen. A female, eleven years old, sick in the country for ten days, without treatment further than "home remedies," was brought to the city in a horrible, septic, toxic state. When first seen, she was suffering from dyspnoea sufficiently urgent to require a tube, which was promptly inserted, giving instant relief. However, no hope of ultimate recovery was entertained. The patient died of an overwhelming toxæmia thirteen hours after intubation.

The other case was that of a child five years old, who had recently passed through an attack of one of the acute contagious diseases. She had been croupy six or seven days when the doctor was called, on account of laryngeal complications. Intubation was promptly resorted to and

liberal doses of antitoxin given, too late, probably, to be effective. The tube was coughed up on the fourth day. The following day the heart grew very feeble as a result of diphtheria toxæmia; coma supervened; the pulse became almost imperceptible; and death ensued early the following morning (sixth day).

Six of the nine cases intubated (66·2-3 per cent.) ran an uneventful course for an intubation case, extubation being done at the proper time, with uninterrupted convalescence. Two of the cases required 1 reintubation, wearing the tube 9 and 12 days respectively, and 1 case was reintubated twice, wearing the tube altogether 21 days. Only one of the series required temporary removal of the tube to clear it of a mucous plug. 2 tubes were coughed up, 1 before the regular time for extubation (as above stated), and the other on the second day following a reintubation. Neither of the cases required reinsertion of the tube. In 8 cases postponed on first call for intubation, only 1 required subsequent intubation. It is sometimes difficult to determine whether it is safe to postpone a case to second call. It is much easier to intubate than to wait for developments, but I have invariably declined to intubate, until *very* definite reasons for the operation exist, with the exception that occasionally I have, upon the statements of the family as to previous, recent, severe attack of dyspnoea, intubated cases, showing distinct laryngeal stenosis, though not at the moment urgent, but located in a remote, inaccessible part of the city. My observation is that such cases usually come to intubation, and it is far safer to intubate a few hours too early than to try to reach the case a few hours later as an emergency call. Physicians generally are, in my opinion, declining to postpone the call for intubation until the case becomes desperate. The operation affords prompt relief, and is perfectly safe, if not deferred to the last few minutes of life, as occasionally occurs. In such cases no better results should be expected than in any other operation under similar conditions, although even then we have seen not a few lives saved at the last minute.

Careful instructions should be given as to the method of feeding the intubation case. The method frequently employed is that of Castleberry—to place the patient in the dorsal recumbent posture upon a horizontal plane, using liquid nourishment. I find semi-solid foods much more suitable than liquids for the intubation case, though water should be freely given. I get strangling much less frequently if the patient is placed full upon side—the transverse diameter of the body being perpendicular to the horizontal plane. (It is not sufficient to turn the head upon the side.) Food or water introduced into the lower angle of the mouth, by means of a spoon or large dropper, finds its way more easily past the tube, and the patient is not disheartened by constant strangling, which may cause the younger patient to decline food almost to the point of starvation.

I wish to record my grateful appreciation of the valuable assistance rendered by the Medical Inspector, Dr. C. C. Hudson, in procuring speedy intubation for the urgent cases, and in giving personal attention to the investigation of cases suspected of having laryngeal complications.

*Cases of Laryngeal Diphtheria Seen for the Richmond Health Department
for Six Years, 1907 to 1912.*

YEAR	INTUBATED				NOT INTUBATED			TOTAL			
	Recovered	Died	Total	Case Fatality, Per Cent.	Recovered	Died	Total	Recovered	Died	Total	Case Fatality, Per Cent.
1907.....	5	1	6	16.7	1	.....	1	6	1	7	14.3
1908.....	5	1	6	25.0	.....	.....	.....	5	1	6	25.0
1909.....	5	1	6	16.7	2	.....	2	7	1	8	12.5
1910.....	14	2	16	12.5	4	.....	4	18	2	20	10.0
1911.....	22	1	23	4.4	8	1*	9	30	2	32	6.3
1912.....	7	2	9	22.2	7	.....	7	14	2	16	12.5
Total.....	56	8	64	12.5	22	1*	23	78	9	87	10.8

*Congenital stenosis of larynx, making intubation impossible. Died in spite of tracheotomy.

Respectfully submitted,

P. D. LIPSCOMB, M. D.

REPORT OF SMALLPOX HOSPITAL.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

In the absence from the city of Dr. Isaac Curd, physician to the Smallpox Hospital, I have prepared at your request the following report of that institution for the year ending December 31, 1912.

	WHITE			COLORED			TOTAL		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Smallpox from Richmond.....	2	1	3	23	8	31	25	9	34
Suspects from Richmond.....	2	6	7	12	7	19	14	12	26
Total.....	4	6	10	35	15	50	39	21	60

Two (2) of the suspects subsequently developed smallpox. This made a total of 36 cases treated at the hospital during the year. The old building which had been used for colored patients became untenable, owing to a leaky roof, and the negro patients were transferred to the new building. This caused some trouble in July, when one white patient and several negroes were in the same building. Some provision should be made whereby the two races may be separated.

One of the patients, a negro woman 66 years of age, died. She was a very fleshy woman, and had the hemorrhagic form of smallpox.

Respectfully submitted,

C. C. HUDSON, M. D.,

Medical Inspector.

REPORT OF NURSE IN CHARGE OF WORK FOR THE PREVENTION OF INFANT MORTALITY.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor of submitting herewith my report of the work of the nursing staff in connection with

- (1) The Prevention of Infant Mortality.
- (2) Tuberculosis.

PART I.

The general plan of the work in 1912 was the same as in the two previous years, with the following exceptions: The entire nursing staff was put on for the whole year. This was not possible in 1911. The list of babies selected for supervision had previously been made up, for the most part, during the early months of the year. Districts were enlarged and more babies taken on outside of the regular districts. Our instructions included care and disinfection of the diapers, and protection of the babies from flies. On the 1st of March the previous arrangements with the Instructive Visiting Nurse Association, whereby they had charge of the nursing end of the tuberculosis work of the Department, was discontinued and this work was taken over directly. This seemed to be desirable, on account of our having developed, in connection with the infant work, a corps of nurses of our own, although the Department fully realized and appreciated the excellent work done by the Instructive Visiting Nurse Association and felt that in all instances their work had been done in a conscientious and thorough manner.

Another important change took place on June 15th, occasioned by the resignation of Miss Elizabeth Detwiler, who had been in immediate charge of the work for the prevention of infant mortality since it was begun in March, 1910. Miss Detwiler left behind her a most enviable record, being a woman of great executive ability and a most capable and experienced trained nurse, and having an extensive knowledge in the particular line of work she supervised. It is needless to say that in her resignation the Department lost a most valued member of its staff, both in devotion to the work, and, as before stated, in the extensive knowledge and experience she brought into the field. On June 17th I was appointed Chief Nurse to fill this vacancy.

On beginning the work in 1910, two districts had been selected in which the mortality from diarrhea and enteritis had been especially high. In 1911 one of these districts was enlarged, and in 1912 other small districts were added in various parts of the city where the mortality had been high, and where it seemed that the babies born would have small chance of living unless something was done for them. These districts were more or less scattered, streets and blocks being selected where work seemed most needed. They were also planned somewhat in accordance with our tuberculosis cases, as this work was done by the same nurses. One district

comprised a portion of Church Hill, bounded by Shockoe Creek north of Broad street, and Seventeenth street south of Broad, extending to the river on one side and the city limits on the other two sides. All of Fulton was canvassed, and a small locality in the central part of the city.

The plan of getting as young babies as possible was continued. Among the advantages which it was believed would come from employing nurses throughout the year was the fact that this would make it possible to get in touch with the babies much sooner after birth, and from these gradually select and eliminate as occasion required, and so leave on our list, for special supervision during the summer, only those most needing it. As the nurses were put on duty only a few weeks earlier than usual, this ideal plan could not quite be carried out, but we followed it as closely as possible. This general supervision of young babies has proved to be of great benefit to a number of them, as on many occasions we have been able to persuade mothers to keep their babies on breast milk, so helping them in their struggle for existence. Though we have always made special efforts to take young babies on our visiting list, and this method has proved favorable to these babies, it is very unfavorable to our statistics, the death rate among babies soon after birth being higher than later in life, after the premature and congenitally weak have succumbed.

Our selection of babies outside of regular districts was made to include illegitimate babies, twins, special cases referred to us by physicians, and babies for whom our services were requested by mothers and caretakers. In brief, our effort was to get supervision over all babies which it was fair to regard as handicapped in any way in their struggle for existence.

Up to the close of the year, the names and records of 1,338 babies (or 43.6 per cent. of all births reported during the year) were obtained, 653 white and 685 colored. Of this number, 302 were dropped for various reasons; the nurse's services were not needed in some instances, and refused in others, while several babies were extremely ill when found by us, and died within 24 hours thereafter. A number were lost sight of or did not come under our line of work.

The following table shows the classification, according to feeding of the 1,338 babies visited by the nurses during 1912:

KIND OF FEEDING	WHITE		COLORED		TOTAL	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
Breast	522	80.0	436	63.6	958	71.6
Artificial	96	14.7	185	27.0	281	21.0
Mixed	35	5.3	64	9.4	99	7.4
Total	653	.....	685	.....	1,338	.....

Every effort was made to continue the work among expectant mothers, and while more visits than in previous years were paid among these mothers, and while this division of the work is undeniably more successful than any other, still the difficulty of securing these cases and the great

amount of time which they require, made it impossible to go into this as extensively as we would have liked. We had 130 such mothers on our list, 82 of whom were confined before the close of the year, 38 white and 44 colored. Instruction was given along the lines followed in previous years, covering the care to be taken in regard to general health, proper food, rest and care of breasts, endeavoring to persuade them to engage a physician as early as possible, and impressing always upon them the importance of breast-feeding. The fact that among these 82 babies, only 3 died, would seem to be proof of the value of this kind of work. The nurses were always welcomed by these mothers, and their instructions followed.

As in previous years, the importance of breast-feeding was emphasized. Frequently we found mothers who, without satisfactory reason, were preparing to put their babies on artificial food, not seeming to realize the danger in so doing. By the timely advice and persuasion of the nurse, this was prevented, as illustrated by the following case:

The mother of a colored baby had been under the supervision of the nurse before its birth. When this baby was about 3 months old, the mother was advised by some ignorant friend to change it from breast-feeding to bottle. On the nurse's next visit, the baby was not doing well, and the mother was urged to put it back on breast milk, which she was finally persuaded to do. This baby kept well the entire summer, and when last seen was in excellent condition.

The following figures demonstrate forcibly the advantage of breast-feeding: among 1,036 supervised babies, 32 died from diarrhea and enteritis. Out of this number, only 2 were breast-fed, 20 being artificially fed, and 10 on what we term "mixed-feeding."

Another essential factor in the prevention of infant mortality is looking after illegitimate babies, of which class we find a large number, many of them being placed with caretakers, who are frequently incompetent and ignorant women. These babies need to be watched very closely, since caretakers as a class seem incapable of following instruction. In one or two such cases, we have managed to place the baby thus handicapped in some hospital or institution. By systematic supervision of these babies, and by getting them away from their insanitary surroundings, we feel that we have greatly increased their chances of living.

The following is a forcible example of the carelessness and negligence of many caretakers: a colored mother, in order to leave home and earn a living for her family, was forced to place her baby with a caretaker. This caretaker not only proved herself ignorant, but did not possess the first idea of cleanliness, and persisted in feeding the baby a cheap brand of condensed milk, using dirty bottles and nipples. The nurse who found this baby made an attempt for some days to improve matters, but, finding the woman too ignorant to be taught and the child becoming ill with diarrhea, succeeded in sending it to the City Home, where, receiving the proper care and treatment, it recovered, though we finally lost sight of it.

In one district the nurse located an illegitimate colored baby whose mother soon afterward gave it to another woman for adoption. The adopted mother was looked up, and was much pleased at the nurse's visit, as she was anxious to make a change in the baby's food, it being unusually

small and not gaining in weight. This woman was visited systematically through the summer. She followed all instructions, using cow's milk for the baby and feeding it according to directions. The baby passed through a very hot summer without any illness, and when seen late in December, was well and healthy. This is an instance where the nurse's supervision was instrumental in keeping a handicapped baby well.

In regard to the work and instruction among the artificially-fed babies, we followed closely the methods of 1910 and 1911, urging the use of dairy milk from licensed dairies in cases where the baby was not thriving. In addition to this, we emphasized the importance of perfect cleanliness and instructed the mother or caretaker to keep the baby cool during the very hot weather, stop all food at the very first sign of any digestive disorder, and give a dose of castor oil, sending for a physician if unfavorable symptoms did not soon disappear.

One mother, whose supply of milk from the beginning was very scant, put her twins on condensed milk, alternating with breast-feeding. When they were about three weeks old, no longer able to get breast milk and apparently not thriving, the nurse in that district persuaded the mother to put them on dairy milk which was prepared according to our formula. This change of food agreed with the babies, and they soon began to improve and increase in weight. The mother, who seemed glad to have the nurse's help, was visited frequently throughout the summer, and every effort made to assist her in keeping her babies well. This illustrates what can be accomplished by care and proper feeding.

Another baby, when found in April, was very small for its age, losing rapidly in weight, and its food not seeming to agree with it. This baby soon became ill, at which time the nurse advised that a doctor be sent for, as is our custom in all instances when indicated. The baby, who had been on artificial food for some months, was put on cow's milk. The nurse prepared the feeding and left minute instructions for the mother to follow. A marked improvement soon began to show in the baby's condition, and an increase of weight was noted at each succeeding visit.

We found it of the utmost importance to get in touch with twins born in the city. In many instances this was done, as in the case of other babies, by a close watch of all birth certificates, which are gone over carefully each day to see that all necessary information regarding births is reported. Mothers frequently encounter a good deal of trouble in raising twins, often finding it a task to nurse two babies, and, as a satisfactory solution to this problem, artificial feeding is added. In a few such cases the nurse was able to prevent the babies from being taken off the breast, and in some, by careful instruction regarding bottle feeding, was instrumental in making a healthy baby.

We had on our list during the year 19 sets of twins, 38 babies. Of this number, 9 died, 4 of them having been lost sight of several months before they died. Some of these babies were premature and a number congenitally weak, dying before it was possible to exercise any supervision over them.

One of a set of twins needs special mention, showing both the ad-

vantage gained by the nurse's visits and the use of cow's milk over a great many other artificial foods.

The ——— twins were referred to us by the doctor in charge, it being his desire to have the nurse supervise the feeding, and change it from condensed to dairy milk. Both babies were ill with diarrhea and enteritis, one dying the day of the nurse's first visit, leaving the other extremely ill; the mother incompetent and incapable of caring for it. The doctor in attendance, for some reason, stopped his visits, leaving the baby entirely to the nurse's care. She succeeded in getting another doctor, paid repeated visits herself, and instructed the mother in the care and feeding of the baby, putting it on cow's milk. This baby recovered, and is now in excellent condition.

Another set of twins was found during the summer months. Both babies were thin and fretful, and, from the mother's statement, making no progress. It being evident that the babies were not getting enough food, the nurse advised the mother to put them on cow's milk, alternating with breast-feeding. Both babies soon began to improve, and, in a month's time, had gained considerably in weight. At the last visit recorded, they were both doing well, and the mother expressed appreciation and gratitude for the help and advice she had received.

Through the year, 10,233 visits were made to the babies under our supervision. In accordance with your instructions, which were based on deductions made from studies undertaken by the Richmond Health Department during 1911, and especially on conclusions reached during the epidemic of diarrhea and enteritis in September, October and November, 1911, special directions were given each of those mothers concerning the disinfection of the diapers of all babies.

Among the 1,338 babies who had been listed by us through the year, 39 died from diarrhea and enteritis. Out of this number, 6 were lost sight of early in the year, and 1 was desperately ill and died a few hours after it was located by the nurse, leaving 32 deaths from the above causes among babies under the immediate care of the Department nurses.

Also following your instructions, we endeavored, on all occasions, to instill into the mothers the importance of protecting the baby from flies.

It is gratifying to note that in most of the homes which we have visited, we have met with courteous treatment, and that our work is being more and more appreciated, as so many of the mothers are following our advice and instruction.

In addition to the work outlined, we continued the visiting and the inspection of the maternity and foundling homes in the city, keeping records of all births and deaths in these institutions, and investigating these when it seemed necessary. Also the office work in connection with the prevention of infant mortality and tuberculosis, which latter branch of work has been placed under the direct supervision of this Department, is quite an item, requiring a great deal of time and thought, and is very necessary in making the outside work effective.

Before closing this portion of my report, it gives me pleasure to say a few words on behalf of the nurses associated with me in the above work.

The present corps was connected with the Department during a large part of the past year, and accomplished an amount of good work, both along the lines of the prevention of infant mortality and tuberculosis.

PART II. Tuberculosis.

On March 1, 1912, the tuberculosis work was taken over by the Health Department nurses, who continued the work of the Instructive Visiting Nurse Association nurses in the Department tuberculosis work, which embraced that done at the Health Department Tuberculosis Dispensaries, visiting dispensary patients in their homes and locating and visiting all other suitable cases.

A number of suspected tuberculosis cases were located by the Department nurses, often in the homes of babies under our supervision, and we find it has proved of great advantage to the Department in having connected the tuberculosis work with that for the prevention of infant mortality, in that it has enabled us to find tuberculosis patients who were not under the supervision of physicians, and so had not been reported to the Health Department.

The appended table gives a summary of the tuberculosis work done by the Department nurses from March 1, 1912, to December 31, 1912.

Number of visits to dispensary patients, white.....	296
Number of visits to dispensary patients, colored.....	627
	<hr/>
Total number of visits to dispensary patients.....	923
Number of visits to non-dispensary patients.....	2,002
	<hr/>
Total number of visits to tuberculosis patients.....	2,925
Number of suspected tuberculosis cases located by nurses.....	68
Number of dispensary service hours given by nurses.....	560

For further information I refer you to the reports of Chiefs of Clinics of the Health Department Dispensaries.

Allow me to add that there is a wide field for work along the line of prevention of tuberculosis, and we hope during 1913, by repeated efforts, to meet with greater success.

Respectfully submitted,

MARY JULIA MOORE,
Chief Nurse.

REPORT OF INSPECTOR OF MILK AND FOOD SUPPLIES.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit herewith my report as Inspector of Milk and Food Supplies for the year ending December 31, 1912.

Visits for the year 1912.....		10,440
Grocery stores	3,048	
Bakeries	220	
Dairies	1,200	
Markets	600	
Depots	160	
Cold storage plants	300	
Ice cream plants	280	
Commission houses	2,452	
Fish auctions	620	
Confectioneries	300	
Abattoirs	200	
Visits to hotels, restaurants, cook shops and drug stores on account of screening	1,060	
		<hr/> 10,440

Number of places inspected as follows:

Depots	5	
Abattoirs	10	
Cold storage plants	4	
Ice cream plants	10	
Commission houses	33	
Grocery stores	727	
Bakeries	20	
Dairies	2	
Markets	2	
Confectioneries	249	
Fish auctions	4	
Hotels	10	
Restaurants	112	
Cook Shops	40	
Drug stores (soft drinks)	33	
Fish houses	39	
Tea and coffee stores	6	
Butcher shops	17	
Groceries (wholesale)	9	
Pie plant	1	
Pickle factories	4	
Candy factories	2	
Cake and cracker factories	2	
Total.....		<hr/> 1,341

Permits granted	267
Permits revoked	7
Permits restored	7
Permits refused	3
Cases to court	
Cases fined	
Milk to churn (gallons)	30,320
Samples to Chemist	2,164
Samples to Bacteriologist	1,674
Amount paid to City Treasurer as shown by Auditor's receipts..\$	534 00

FOOD PRODUCTS CONDEMNED.

	lbs.	Value.
Meats	5,448	\$ 496 59
Game	4,824	714 00
Fruits	73,925	1,438 00
Poultry	610	87 45
Eggs	945	177 45
Vegetables	62,015	1,155 00
Fish	12,440	377 50
Butter	50	10 00
Assorted groceries	682	108 00
Melons	89,160	1,203 35
Oysters	876	51 00
Milk..	232	51 04
Total.....	251,207	\$ 5,869 38

One car of meat affected and allowed to the refinery for bone and fat value, about 5,000 lbs.....	\$ 400 00
Amount of condemnations since the reorganization of the Department, 1906 to 1912, inclusive, 1,374,874 lbs.....	\$ 49,305 81
An average of 196,410 lbs. per year.....	\$ 7,043 69

The efficiency of the Milk Division of this Department under Dairy Inspector, T. J. Strauch, and his Assistant, P. L. Cantrell, was plainly shown in the small amount of milk it was necessary to condemn during the past year, the amount being 260 gallons; the smallest amount since milk inspection was started. Another remarkable showing is the fact that it was not necessary to report one case to the Police Court during the past year for violation of the milk ordinance.

The retail stores under the supervision of Assistant Food Inspector, C. J. B. Hare, have shown marked improvement, and have therefore been the cause of few complaints, plainly showing that he has performed his duties in a most efficient manner.

The merchants and farmers have shown every disposition to co-operate with the Department in following the instructions of the Chief Health Officer regarding the handling of perishable food supplies, especially poultry, his instructions proving very satisfactory and the best ever suggested.

The demand for poultry and game being greater than the available supply, there was no surplus to be put into cold storage—this being the reason for the lack of cold storage poultry or game in the market during the past year. Large numbers of cold storage eggs were offered for sale—in fact, the supply was far in excess of the demand.

Condemnation of food stuffs was general during the year, large amounts being of hogs and hog bones which had not been properly cooled before being packed. It was also necessary to condemn large numbers of rabbits on account of climate conditions and the fact that they were packed with the fur on.

I would strongly recommend an ordinance that would regulate the storage of food products, especially poultry, game, fish and eggs, with a view of doing away with the deception now practised in the sale of the above mentioned articles.

Respectfully submitted,

E. M. NOBLE,
Food Inspector.

REPORT OF DAIRY INSPECTOR.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to present to you my report as Dairy Inspector for the year ending December 31, 1912.

Number of visits to dairy farms	1,491
Number of dairies visited and scored.....	160
Number of scores made.....	1,250

CLASS	Jan.	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
60 to 70	0	0	0	0	1	0	1	0	0	0	0	0
70 to 80	27	23	32	27	27	25	30	23	15	23	24	22
80 to 90	60	66	68	78	86	78	77	75	79	85	78	79
90 to 100	5	5	3	4	3	4	3	3	00	3	3	5
Total number of scores made during month	92	94	103	109	117	107	111	101	94	111	105	106
Number of dairies scored which continued to sell milk and cream during month.....	92	94	102	109	116	106	110	101	94	111	105	106
Average score.....	82.4	82.6	82.0	82.4	82.5	81.5	82.5	82.5	82.5	82.5	82.3	83.0

Permits refused	12
Permits suspended	7
Permits suspended and restored	7
Permits revoked during year.....	3
Permits restored that were revoked during year.....	2
Permits restored that were revoked during 1911.....	1
Average score of 3 places whose permits were revoked.....	69.1
Average score of 3 places whose permits were revoked and restored	79.5
Permits revoked and not restored	1
Diseased cows found and use of milk from same ordered discontinued (1 giving stringy milk, 4 with injured teat, 5 with garget, 2 abscess on udder, 5 with inflamed bags, 11 with cowpox, 18 with sore mouths)	45
Tubercular cows ordered permanently removed from herds....	4
Gallons of milk condemned	260
Gallons of milk ordered to the churn.....	30,320
High Bacteria	2,109
High Temperature	4,491
Below Standard	23,720

Samples of milk taken for bacteriological examination.....	1,666
New barns built during year	22
New milk houses built during year.....	21
Sets of blue prints for barn construction furnished during year.	60
New barns under construction	9
New milk houses under construction.....	9

Number of new shippers to the Richmond market during past year	23
Number of shippers that have discontinued shipping to Richmond during past year	13

The work of the Richmond Health Department regarding the milk and cream supply of this city is first to protect the people of Richmond, but it is perfectly familiar with the producer's side of the business and is always willing to co-operate with him. He must realize that one of the principal factors in the increased consumption of milk in Richmond is the confidence of the public in this Department to see that the milk is produced and delivered to the consumer under the present day most sanitary conditions. Any milk delivered to the consumer which lacks either in purity or quality is detrimental to every other producer selling his product on the market, as it has a tendency to decrease the demand. It should be the aim of every dairyman to use all possible care in the production and handling of milk on his dairy farm, and see that it is delivered either to the consumer or distributor in the best condition possible. He will then be doing his part toward inducing consumption of more milk and milk products.

During the months of January, February and March there was a big surplus of milk and cream on this market. At times during the balance of the year there was a shortage. The shortage can be attributed to the following causes: increased consumption; decreased production, owing to dry pastures and the number of cattle affected by a disease of the mouth and feet; and the very large quantities of cream used during the warm weather by local ice cream manufacturers, a great portion of this manufactured article being shipped to other States.

If dairymen can only be made to realize the injurious effect that flies have upon the milk yield of cows, they would make every effort to keep flies out of their cow barns, also reduce the number of breeding places by keeping the premises, especially around the barn and milk house, clean of all manure and filth in which flies may breed. The continual fly fighting on the part of the cow, especially during the summer months, calls for a certain amount of energy, which is sure to cut down the milk yield. The milk flow is not only decreased on account of the fly fighting, but they are also a great source of worry, and the cows will not eat sufficient food to produce what they are normally capable of doing if it were not for this worry.

A striking example showing the value of good grade cows over the ordinary scrub cattle was very forcibly brought to my notice during the month of November, and it will do well for many dairymen to follow the example set by the one I am about to speak of. During the past November I visited a dairy farm some distance from Richmond to inspect the premises, with a view of granting the dairyman a permit to sell the product from his place on the Richmond market. I was surprised on looking over the cattle to find a well-bred herd of grade Jerseys of the right type and having all the outward signs of being profitable producers. I remarked to the owner of the cattle that it must have taken years of breeding with

improved sires to get his herd up to their present standard. He told me no, that he had only been in business a little over a year, but when he started, had purchased the best grade Jerseys he could find, paying on an average \$125.00 each for 14 of them, and that he had sold in Norfolk during the year \$2,100.00 worth of cream, or an average of \$150.00 per head from each cow in a year. Had this herd consisted of the average cows found on dairy farms, they would have produced from \$75.00 to \$90.00 each year. There is also a pure bred bull on this farm, which shows this man is working along the proper lines to build up a herd of still greater producing capacity. The point I wish to bring out is that the average dairyman starts with a herd of scrubs costing \$30.00 to \$40.00 each, and it takes him about five years to realize that they are a poor proposition, then about three to five years more to make up his mind either to buy some good cows or a pure-bred sire with the idea of breeding up his herd. If he adopts the latter plan, it takes another five years before he gets any well bred cows, so no matter how you figure it, the dairyman starting with good cows has about ten years' advantage over the average dairyman.

To better illustrate what I have just stated above, also to show the difference in the amount earned by the good grade cows purchased and the probable amount which would have been earned had the average scrub cattle been purchased, the following figures are given:

Cost of 14 Jersey grades purchased at \$125 each.....	\$1,750 00
Estimated cost of 14 average scrub cows, \$40 each.....	560 00
Difference in cost	\$1,190 00
Value of product produced by 14 grade Jerseys sold in the form of cream	\$2,100 00
Estimated value of the product of 14 average scrub cattle when sold in the form of cream.....	1,260 00
Difference in favor of grade Jerseys.....	\$ 840 00

The above shows that the 14 grade Jersey cows would earn in a year the difference between \$2,100.00 and \$1,260.00, or \$840.00 more than the scrubs. Taking it another way, the grade Jerseys cost \$1,750.00, the scrubs \$560.00—a difference of \$1,190.00, the extra investment of which would enable the dairyman to make an extra gross profit of \$840.00, or about 75 per cent. on this extra investment in a year.

It would also mean that in a year and a third the good cows would earn their extra cost in the difference in the amount produced by them in excess of that produced by the inferior cows. So it looks like a good business proposition to purchase good cows, even if it be necessary to borrow the money and pay 10 per cent. interest for its use. Some few dairymen are realizing this, and where good cows cannot be found in the State, are going to other States to purchase them.

During the latter part of August and most of September there existed

around Richmond, also in many other parts of the State a disease affecting the mouths of cattle. This disease resembled very much the contagious foot and mouth disease, but it was less serious and did not prove to be contagious.

Among the first symptoms observed in this disease are inability to eat, diminished milk flow, dribbling of saliva from the mouth, and sometimes a stiffness in the gait. A careful examination of the mouth will show it to be red and hot, with blisters, and open sores on the lips, tip of the tongue and other parts of the mouth. It is very difficult for a cow to eat unless the food is placed on the back of the tongue in the rear of the blisters or sores or fed on soft food such as mash. This disease when properly treated has not proved to be fatal and usually lasts about ten days.

There is no doubt but that this disease is caused by the eating of forage or food containing fungi or molds, which causes an irritation of the mouths and sometimes the feet of animals. The rusts that appear on clover have been given credit by a great many for being the principal cause of this disease. No doubt they are one of the causes, but whether there are others has never been determined. The two attacks which have occurred around Richmond, one this year and the other four years ago, came after a long, hot, dry spell, followed by rain. The following treatment was used in both attacks in this vicinity very successfully: remove cattle from pastures in which they have been running, and feed on soft food, such as brand mash, to which add and thoroughly mix one tea-spoonful of pure carbolic acid to each quart of brand mash. The feet when sore should be bathed with hot water containing creolin or carbolic acid about a tea-spoonful to the quart. A little saltpeter in the drinking water will be found very beneficial for the first few days. A mouth wash containing one tablespoonful of boric acid in a quart of water used several times a day has also been found very beneficial.

A cow-testing association, consisting of 13 members and 621 cows, was organized by Richmond producers in April. Owing to lack of interest on the part of some of the members, the association was discontinued in August.

As all dairymen are not familiar with the organization and benefits to be derived from cow-testing associations, with the proper man to do the testing, I will explain the plan of organization and operation of these associations.

The organization of a cow-testing association consists of a number of dairymen in a locality, about 24 being the best number, and having about 500 to 600 cows between them, entering into a contract with a person selected to do the testing and agreeing to pay him a stipulated price per cow per year, the price generally being one dollar per head and his board and lodging on the farm in which he is working.

The work of the tester consists of weighing accurately for each individual cow in each herd once each month the daily amount of milk given by the cow, and to take a sample of each cow's milk every month to determine its fat content. It is also the duty of the tester to take part in the feeding of the cattle and to see that they are receiving the most eco-

nomical feed consistent with the most profitable production. At the end of the year a complete record of each cow is turned over by the tester to the farmer. The record shows the amount of milk produced, fat content and the cost of keeping each cow for the year.

The most important thing connected with a cow-testing association is the selection of a proper man to act as the tester. He should be a man of personality and tact, must thoroughly understand feeds and feeding, being able to balance a ration, must be perfectly familiar with the Babcock test, and be qualified to instruct the farmer in the breeding of animals. The better posted a man is on dairying, the more valuable he will prove to the members of the association.

During the past year, several very valuable cows died from milk fever. This disease usually attacks the big milking cows, and, therefore, the loss is very severe. This disease usually appears from twelve to forty-eight hours after calving, with the following symptoms: vacant stare of the eyes; twitching of the muscles; pain in the body; the hind quarters become paralyzed and the cow goes down, and unless relief is quickly given, the cow dies.

The best known method for the treatment of this disease is the injection of sterile air into the udder by an outfit known as a "Milk Fever Outfit." Where this is not at hand, practically the same results can be obtained by using an ordinary bicycle pump. After thoroughly cleansing the hands and udder and sterilizing the bicycle pump in boiling water, insert a silver milking tube that has also been sterilized full length in the teat and fill the quarters of the udder with all the air it will hold by the use of the bicycle pump. Do this with each teat, working the air through the udder by massage.

A soft cloth string tied around each teat will retain the air in the udder. These strings are removed from the teats at the end of three or four hours, or sooner if the cow gets up. This treatment may be repeated if not successful after the first trial.

In spite of the fact that it has been proven any number of times that it is impossible to feed fat into the milk of a cow in normal condition, a number of dairymen still think that by the influence of feed the fat content can be increased. By putting a cow in an abnormal condition by fattening her just before calving and then underfeeding her after calving, a cow can be made to give milk testing above what they are capable of giving when in normal condition. This is one reason why tests of dairy cows for fat soon after calving for short periods do not indicate what a cow is capable of doing, for they are often specially prepared for these tests by heavy feeding before calving. When by some system of feeding we can take the large producing Holstein cow and make her produce the quality of milk produced by the Jersey or Guernsey, we will then have proven that we have discovered the system of feeding fat into milk.

As the result of feeding frozen ensilage, a number of cows were made sick during January and February, the ensilage causing a severe form of diarrhea. Where the feeding of the ensilage was discontinued as soon as the cows became sick and a mild purgative, such as a pint of castor or linseed oil administered, there was no serious effect other than a failure

of the cow to give her usual quantity of milk for about one week after she had been taken sick.

When we take into consideration the difficulty in buying satisfactory cows, it is plainly evident that the solution of the problem is raising calves from our large, milk-producing cows by a pure bred sire of a known milk-producing family. As a calf is supposed to inherit fifty per cent. of the qualities of its sire, we can plainly see by the following table how in time a very well-bred dairy herd can be built up.

	Per cent. Improved.	Per cent. Unimproved.
1st cross	50	50
2nd cross	75	25
3rd cross	87.50	12.50
4th cross	93.75	6.25
5th cross	96.87	3.12
6th cross	98.43	1.56

By the above table it can be seen that the first calf will be 50 per cent. pure bred. This calf, when matured and bred to a pure bred sire, will have a calf 75 per cent. pure bred, and so on down to the sixth generation, when we have a calf $63/64$ pure bred.

It is better for both the cows and calves to have the cows come fresh in the fall of the year, for the following reasons: she is not annoyed by the heat or flies, and when spring comes, the fall-freshened cow is beginning to decline in her milk flow, the fresh green pasture has the effect of again increasing her flow of milk through the spring and early summer. The dairyman also has more time to give in winter to the raising of calves.

As a number of dairymen are purchasing pure bred sires, with the idea of improving and building up more profitable herds by increasing the producing capacity of their cows, great care should be exercised in the selection of these sires. As the fundamental principle of all breeding is that like begets like or the likeness of some ancestor, the first thing to look into before purchasing a sire is to see that he is descended from good milkers. Look well into the records of his grandam and great-grandam. Do not think that because a bull is pure bred he is the individual you want, for there are any number of bulls whose purity of blood can be boasted of by their owners, yet when we look up their ancestors for a few generations back, we find a lot of scrubs as far as milk and butter fat production is concerned. Here is where the "papers" which should accompany every pure bred bull prove their value—they not only indicate that the bull is pure bred, but they tell us the history of his ancestors and what they were capable of doing. It is always well, no matter how reliable the seller may be, to decline to purchase any bull with which it is impossible to get his papers. The selling of bulls is getting to be like the selling of horses with supposed fine breeding—the seller always has a nice little story to tell why, owing to some little technical point, his name cannot be entered in the registry books. Therefore, the importance of breeding from any

but a sire whose ancestors possessed known producing qualities is a step in the wrong direction, and is in a large measure the cause of there being so many poor dairy cows on the farm at the present time. Another thing to be avoided is the purchase of a bull that shows any symptoms of disease or feebleness. The following points will generally be found in all well-bred, healthy bulls, and are an indication of nervous temperament, constitution, capacity and ability: large, open nostrils; large mouth; large, clean cut neck, well-developed in the regions of the windpipe; ribs, deep and well sprung; hide, soft and pliable; back bone, large and open-jointed; width between prominent hip bones; great length and straightness from hip to pin bones; and width through thurls.

Tuberculosis, a preventable disease of cattle, is found in almost every locality where dairy cattle are kept, it being most prevalent where cattle are stabled in dark, poorly ventilated stables. The cause and means by which this disease is spread is so well known that the only problem really before us is to eradicate it from the diseased herds by applying the tuberculin test and disposing of the reactors, and after obtaining a healthy herd, to keep it healthy, by preventing contact of the animals free from tuberculosis, as shown by the test, with diseased animals, and adding only healthy cows to our herds. During the past year, twelve herds, the product from which was being sold on the Richmond market, were officially tested, the results following:

Tested under act of last legislature, by which all animals showing the presence of tuberculosis are killed and the owners reimbursed to the extent of 60 per cent. of their appraised value. Test being applied by a veterinarian from the Bureau of Animal Industry, Washington, D. C., working in co-operation with the State Dairy and Food Commissioner.

Herd No. 1—Number of cows tested,	24;	reactors,	2
Herd No. 2—Number of cows tested,	46;	reactors,	0
Herd No. 3—Number of cows tested,	33;	reactors,	0
Herd No. 4—Number of cows tested,	20;	reactors,	2
Herd No. 5—Number of cows tested,	40;	reactors,	3
Herd No. 6—Number of cows tested,	36;	reactors,	0
Herd No. 7—Number of cows tested,	26;	reactors,	5
Herd No. 8—Number of cows tested,	74;	reactors,	0
	299		12

In the above eight herds of 299 cows, only 12 cows, or 4 percent, were reactors.

Tested under the direction of and by a veterinarian from the Bureau of Animal Industry, Washington, D. C.:

Herd No. 9—Number of cows tested,	72;	reactors,	36
Herd No. 10—Number of cows tested,	60;	reactors,	0
Herd No. 11—Number of cows tested,	35;	reactors,	0
Herd No. 12—Number of cows tested,	51;	reactors,	1

218	37
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Taking the tests of the twelve herds of 517 cows showing 49 reactors, we find 9 1-2 percent failed to pass the test.

In addition to the above, there were tested during the year about 10 herds or 200 cows, either by a private veterinarian or the owners themselves, so at present there are about 717 cows, the product from which is being sold on the Richmond market, that have successfully passed the tuberculin test, or 14 percent of the total number of cows, the product from which is being used to supply this market with milk and cream.

As some dairymen are having their herds tested for tuberculosis, where reactors are found too much attention cannot be given to see that the stable and surrounding premises are properly disinfected. With a little care, this can be done very effectively by following these simple directions:

The surface of the ceiling, walls and floor of the barn should receive a thorough cleansing, all cobwebs brushed down, and where there is any accumulation of filth, same removed by scraping. The stable yard must also receive a good cleaning, and several inches of the earth or surface soil of the stable yard removed to some place inaccessible to the live stock on the farm. Where the surface soil has been removed, it can be replaced with soil from some part of the farm that has not been visited by the live stock.

After the stable and yard have received the proper cleaning, we are now ready for the use of the disinfectant. As the agent prescribed here for the destruction of bacteria is poisonous to man and animals, great care must be used in the handling of same. Liquid carbolic acid, 95 percent pure, used in the proportion of 2 or 3 ounces to a gallon of water, (to be well stirred during the process of mixing) is one of the best and safest disinfectants to use. The entire inside of the stable should be saturated with the disinfectant, special attention being given to the gutters and feeding troughs.

During the past year this Department has furnished to persons desiring to build dairy barns 60 sets of blue prints showing detailed constructions and measurements of modern up-to-date dairy barns, no applications for blue prints being refused, even if it were known that the applicant did not desire to sell the product from his dairy farm on the Richmond market, some of these blue prints being sent to other States. The educational work of this Department along dairy as well as other lines is being appreciated more as the work is becoming better known.

Profits in dairying can be greatly increased by giving attention to the following six points:

1. Have a pure bred bull of a known milk producing family at the head of your herd.
2. Raise all heifer calves from large producing cows by a pure bred sire.
3. Know what each cow in your barn is capable of doing.
4. Get rid of all unprofitable cows.
5. See that all cows are properly stripped, as the strippings are the richest milk and often test as high as 10 percent in butter fat.
6. Grow plenty of corn for silage, and where possible have sufficient silage to feed during the summer months, in case of dry pastures.

During the past year 22 new barns and 21 new milkhouses have been built by producers for the Richmond market.

T. J. STRAUCH,
Dairy Inspector.

REPORT OF CITY CHEMIST.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I herewith submit a report of the Chemical examinations made for the Health Department during the year 1912.

	CITY'S SAMPLES	AT CITIZEN'S REQUEST
Cream	2	2
Cream, Ice, .....	.....	2
Drug .....	.....	1
Milk, condensed	1	.....
Milk, cow	2,163	228
Milk, human	2	2
Stew, Chicken .....	.....	1
Water, spring	1	.....
Total	2,169	236
Grand Total .....	.....	2,465

Table showing the average composition of the City's samples of cow's milk.

	Fats.	Solids not fat.	Total solids.
All samples	3.40	9.19	12.59
Below-samples	3.11	8.79	11.90

The per cent. of samples below standard during the year was.... 23.53

Very truly yours,

J. M. WHITFIELD.

REPORT OF PLUMBING INSPECTOR.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit herewith my annual report as Plumbing Inspector for the year ending December 31, 1912.

The past year has been another very prosperous one in the building trade, and the number of new houses erected exceeds that of any previous year. Plumbing inspections and tests were made in 666 new buildings erected last year, including the First National Bank Building, the Richmond Hotel Annex and the Life Insurance Co. of Virginia, and other large buildings. These were very large structures that required numerous inspections and tests to be made during their construction. The method of ventilation and drainage and the plumbing equipment installed in these buildings were of the most improved and modern type, and the work done in them compares favorably from a sanitary standpoint with that of any in the country.

During the year we made 2,217 inspections of additions and alterations in plumbing. This work includes the introduction of sewers and water closets on premises, new additions to houses, and other plumbing improvements in old houses.

The present year commences with a large volume of work on hand, including several large buildings not yet completed, and the indications are, according to the number of plans already submitted for residential and other work, that we will have another very prosperous year in building operations.

The very rapid growth of our city in the last few years in building improvements has greatly increased the work of the office, but with my Assistant Plumbing Inspector, Mr. Boaz, and the assistance rendered by Mr. Thomas Mitchell in making the plumbing inspections in South Richmond, both of whom I must say have discharged their duties very efficiently, we have been able to meet the demand for inspections promptly.

I desire to call your attention to the numerous complaints of property owners and citizens generally to the Health Department from different sections of the city, relative to the nuisance of the untrapped catch basin. Wherever these basins are installed, the conditions are such that the sewer air from the main sewers escapes in our streets, and in some instances it has been found that illuminating gas also enters these untrapped catch basins from leaky gas mains and escapes in the street. The nuisance therefrom is very obnoxious, if not detrimental to public health, and is the cause of considerable complaint.

Some years ago I was authorized to make an inspection of a number of these basins, after which I made a full report of the conditions I found to the Street Committee. By that means I finally succeeded in getting some of them remedied, but since that time the matter rested, and we met with but very little success. It is a well-known fact, and I do not hesitate to say that the open or untrapped catch basin in the streets of a modern city is a nuisance that should not be tolerated in any community. I trust, therefore, that you may give this matter your most earnest consideration, and that some prompt action will be taken recommending to the proper authori-

ties that all open catch basins in the city be properly trapped, so as to prevent this nuisance.

Great improvements have been made in South Richmond in sewer extensions, and the installing of water closets and other plumbing fixtures in localities where they were so greatly needed. There is at present a large amount of work in this line under construction, and I trust during this year even much more will be done, so as to better improve the sanitary conditions.

Two new public school buildings were erected during the past year. The plumbing and drainage installed in these buildings and the character of the work done were that which experience has shown to be the most durable and sanitary for such buildings. It is a well-known fact that during the past few years the question of the best sanitary arrangements for public schools has been given the greatest consideration by the numerous plumbing inspectors throughout the country, and after long service results have shown that water closets of a simple and substantial construction are the best and most sanitary fixtures that can possibly be installed for school purposes.

I would like to call your attention again to the consideration of the proposition of erecting Public Comfort Stations in our city, as most progressive cities are now contemplating taking steps to have such improvements for the convenience of the public.

Also I desire to recommend for your consideration the adoption of an ordinance requiring the installation of drinking fountains in all our public buildings, parks and other public places.

In conclusion I will say that I kindly appreciate the assistance rendered me by Chief Sanitary Officer W. T. Tuck and the co-operation of the other sanitary officers, who have been very zealous in rendering me assistance whenever the occasion required it in the abatement of nuisances that necessitated prompt action.

A tabular report of the work done during 1912 follows :

MONTH	Inspections made	Plumbers' Permits issued	New buildings inspected	Additions and alterations inspected	Complaints investigated	Notices served on owners and agents.	Police court cases tried
January.....	211	85	24	167	20	20	1
February.....	193	265	28	140	25	25	1
March.....	191	197	33	133	25	25	1
April.....	206	227	48	138	20	20	5
May.....	391	322	74	293	24	24	4
June.....	223	265	63	138	22	22	4
July.....	371	298	63	280	28	28	4
August.....	263	232	96	147	21	21	3
September.....	356	226	80	226	30	30	1
October.....	225	227	47	151	27	27	3
November.....	275	243	67	182	26	26	1
December.....	294	178	44	222	28	28	4
Total.....	3,479	2,745	666	2,217	296	296	32

Fines imposed, \$75.00.

Respectfully submitted,

THOS. F. LANDERS,
Plumbing Inspector.

REPORT OF THE PLUMBERS' EXAMINING BOARD.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

DEAR SIR:

I have the honor to submit herewith my report as secretary of the Plumbers' Examining Board, for the year ending December 31, 1912.

Meetings held during the year	10
Journeymen plumbers examined	36
Number examined and found unqualified	6
Number examined and licensed	30
Number of licenses renewed	145

Respectfully submitted,

THOS. M. LANDERS,
Secretary of Plumbers' Examining Board.

FUMIGATOR'S REPORT.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report for the year ending December 31, 1912.

MONTH	SCARLET FEVER		TYPHOID FEVER		DIPH-THERIA		TUBERCU-LOSI8		OTHER CAUSES		TOTAL	
	Houses	Rooms	Houses	Rooms	Houses	Rooms	Houses	Rooms	Houses	Rooms	Houses	Rooms
January.....	31	68	.....	.....	24	50	46	132	13	44	114	294
February.....	9	20	1	2	17	34	42	126	11	20	80	202
March.....	29	78	3	12	13	28	60	152	21	52	126	323
April.....	6	10	1	2	13	48	57	202	22	64	98	326
May.....	5	14	.....	.....	8	6	69	268	13	130	90	418
June.....	2	4	8	16	4	8	41	150	35	100	90	278
July.....	4	8	3	8	5	18	58	186	23	52	93	272
August.....	16	34	9	28	9	22	72	404	21	84	127	572
September.....	26	66	8	22	10	32	65	370	14	48	123	538
October.....	51	158	3	8	69	102	50	192	9	26	152	486
November.....	82	196	2	6	38	80	44	156	9	22	175	460
December.....	61	168	2	6	23	54	52	166	14	30	152	414
Total.....	321	814	40	110	198	482	656	2,504	205	672	1,420	4,562

Respectfully submitted,

JAMES F. WALLER,
Fumigator.

REPORT OF WHITE TUBERCULOSIS DISPENSARY.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

DEAR SIR:

I have the honor to submit the following annual report of the work done at the White Tubercular Dispensary for the year ending December 31, 1912.

During the year there were 657 visits made to the Dispensary by 152 patients, 93 of whom were new patients. One noticeable fact is that the number of males applying for treatment has been increased so as to nearly equal the females. That these males were mostly adults, who are with difficulty influenced, seems to me encouraging. The number of visits for the year is slightly below 1911, and the visits by nurses at their homes greatly reduced. This last fact was due, perhaps, to the additional work given to nurses investigating infant sickness and mortality. Notwithstanding this fact, it is evident that only about 10 fewer patients were treated than in 1911.

The arrested cases number 13, about 8 percent, which seems as good as could be expected, considering the inability of patients to follow closely the treatment as to rest, diet, etc. The results from the Dispensary cannot be estimated by the number of cases or arrested cases.

Its usefulness in instructing patients how to live, and how to protect others from infection, and, also, the importance of early diagnosis and treatment for the best results, does, or at least, will bring fruits. The Dispensary exerts another benefit at times finding tuberculars for registration that would go unreported. It also gives to the poor an opportunity to be examined by those skilled in physical diagnosis when even a negative diagnosis is a valued comfort.

The final disposition of those that once attend are as follows: some are induced to go to Pine Camp or even Catawba, the State's tuberculosis sanatorium, where they can be better treated and also isolated; some go to their homes or relatives in the country; and still others return to their own physician after having the diagnosis confirmed. Those remaining continue as patients until they progress so they cannot longer attend or get well.

It is the intention of the staff to use tuberculin as a therapeutic measure on a few selected cases this coming year.

I wish to take the opportunity to thank the staff and nurses for their conscientious efforts in making the results of the year's work such as it has been.

The appended table of summaries gives a detailed account of the work month by month.

Respectfully submitted,

GILES B. COOK, M. D.

REPORT OF WHITE TUBERCULOSIS DISPENSARY.

MONTH	SEX	AGE		STAGE OF TREATMENT		DIAGNOSIS		SPUTUM REPORT		WEIGHT		NO. OF VISITS		CONDITION					NO LONGER UNDER TREATMENT													
		Under 20 years	30-40 years	Over 40 years	New patient	Old patient	Discharged	Tubercular	Non-tubercular	Undetermined	Positive	Negative	Not examined	Increased	Stationary	Diminished	To dispensary	By nurse	Disease arrested	Improved	Unimproved	Progressive	Died	No case	Left city	Lost sight of	To other dispensary	To private physcn's	To sanatorium	Referred		
1912	Male																															
January	18	31	7	24	18	42	1	39	7	3	32	12	17	27	9	57	127	1	18	26	4			1		1		1		1		2
February	19	18	9	15	13	30	2	33	3	1	27	4	4	18	7	60	71	2	10	19	5	1										2
March	7	23	9	14	17	29		30	1	5	23	11	5	30	5	63	42	7	10	27	2	1										2
April	19	20	9	16	14	18	26	32	2	6	27	13	4	30	8	66	38		7	29	2											2
May	17	20	11	12	14	9	28	30	2	4	20	18	3	23	8	56	17		14	22	1				2		1		1		3	
June	12	22	6	16	12	10	24	27	3	7	18	6	6	16	5	34	21		11	21	2										2	
July	13	14	4	11	12	3	22	2	4	16	4	4	4	16		47	13		11	15	1				1		1		1		2	
August	7	13	6	7	7	5	15	19	3	3	13	6	4	16		47	13		9	16	1										1	
September	12	18	11	9	10	9	15	24	3	3	16	11	11	14		62	27		5	9											1	
October	10	19	8	12	9	10	19	25	1	3	19	8	14	15		62	27		15	13	2										1	
November	17	14	5	13	13	3	28	1	26	2	23	5	15	8		61	36		16	12	2										1	
December	15	20	9	12	14	6	23	4	30	1	4	21	10	19	13	3	68		4	16	13											13
Total	176	232	94	161	158	93	315	13	337	31	42	255	101	115	233	69	463	13	146	223	23	2		4		4		4		13		

REPORT OF COLORED TUBERCULOSIS DISPENSARY.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit herewith my annual report of the work done at the Colored Tuberculosis Dispensary and by the Nurses of the Richmond Health Department during the year 1912.

There were 781 visits to the Dispensary, and 846 visits were made by nurses to patients at their homes. Of the patients attending in 1911, 65 returned in 1912, and 135 new patients presented themselves for treatment, making a total of 200 patients for the year. The greatest number attending in any one month was 73 in June, and the smallest number was 38 in November.

The patients who attended may be classified as follows:

Sex: 69 males, 131 females.

Age: 52 under 20; 113, 20 to 40; and 35 over 40 years of age.

Diagnosis: 95 tubercular; 30 nontubercular; 75 undetermined.

Referred: To other dispensaries, 19; to private physicians, 12; to City Hospital or sanatoria, 4.

Of the 95 tubercular patients, 50 attended fewer than 4 times, and hence are not classified below as to condition after treatment. Many of these came only once, as did also many of those whose diagnosis is undetermined.

The condition, after treatment, of the 45 tubercular patients who attended 4 or more times, was as follows: disease arrested, 3; improved, 16; unimproved, 9; progressive, 7; died, 10.

The small number of cases reported "arrested" is due to the fact that upon substantial improvement in condition, dispensary patients are sure to discontinue treatment before we can safely discharge them as "arrested." Those showing "improvement," especially from beginning of treatment, quickly drop out, thinking to continue improving, while the unimproved become discouraged at slow results, and seek aid elsewhere. The progressives soon find their way into hands of a private physician, and are, therefore, discontinued as dispensary patients. Four patients who died attended the dispensary fewer than 4 times, and are therefore not included in the above classified list. We invariably discharge, at the end of the month, for nonattendance, all patients who have not visited the dispensary at least once during the month, bed-patients and others too ill to attend being excepted. The nurses' visits to patients of private physicians or to discharged patients are not recorded, so they get no credit for such visits, a great many of which are made during the year, the cases being no longer dispensary patients.

From time to time this year, we have employed the class method of instructing the patients. Our method is to have one of the dispensary physicians take 5 or 10 minutes of the dispensary hour, upon days when we have good attendance, to discuss before the patients some single phase of tuberculosis that has a very practical bearing upon the conditions of the tubercular patient. We believe that the attention of patients is more easily enlisted by talking to them in a body. A great deal of time is saved

for the physicians, who must otherwise go over the same round with each patient separately. Opportunity is offered for emphasizing the points of instruction given to the individual patients by the nurses on their regular visits. We have prepared large wall charts, showing at a glance the dates upon which each patient had attended the dispensary during the year. This is to commend those who attend regularly, for we can frequently show good results, and to encourage to better efforts those who seem indifferent to treatment.

That the tubercular subject in the community should attend the dispensary is vastly more important than for any other class of dispensary patients. Ignorant of the modes by which the disease is disseminated, he is usually unwittingly the focus of infection of his family and friends, who in turn contribute their share to spreading broadcast the "great white plague." We believe great good is accomplished in our dispensaries by instructing the patients about the rules that must be observed, if he cease to be a menace to the community.

The results obtained by the Health Department in the prevention of disease—one of its chief functions—are greatly increased by the intelligent co-operation of those members who are suffering from a communicable disease. While the chief object generally of a dispensary is to treat diseased conditions, we do not believe the purpose of the tuberculosis dispensary is served, unless in addition thereto its educational and instructional feature is given especial prominence. We are, therefore, attempting to place particular emphasis upon the importance of systematic instruction of our dispensary patients as to their proper conduct in the home and upon the streets, so that they may gain the best results from treatment and may reduce to the minimum the probability of infecting others.

I wish to express my grateful appreciation of the valuable gratuitous services of my associates, Drs. R. S. Bosher and J. H. Smith, the dispensary physicians, who have made the dispensary work possible, and of the indispensable help rendered at the dispensary by our willing assistants, Drs. J. H. Preston and Porter. I commend the faithful, untiring services of the Nurses of the Richmond Health Department, through whose influence the large number of new patients treated this year were induced to present themselves.

The appended table of summaries gives a detailed account of the dispensary work month by month.

Respectfully submitted,

P. D. LIPSCOMB, M. D.,
Chief of Clinic.

REPORT OF DISTRICT PHYSICIAN, SECOND DISTRICT.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as District Physician for the year ending December 31, 1912. This report is intended to cover the work done by Dr. J. F. Hubbard during the first seven months of the year, and that done by me during the remaining five months.

Number of visits, white	1,686	
Number of visits, colored	967	
	<hr/>	
Total number of visits.....		2,653
Number of white patients	317	
Number of colored patients.....	153	
	<hr/>	
Total number of patients.....		470
Number of patients, male	152	
Number of patients, female.....	318	
	<hr/>	
Total number of patients		470
Number of deaths, white.....	3	
Number of deaths, colored.....	10	
	<hr/>	
Total number of deaths.....		13
Number of patients sent to City Home.....	39	
On hand December 31, 1912.....	9	

Respectfully submitted,

J. H. CROUCH, M. D.,
District Physician.

REPORT OF DISTRICT PHYSICIAN, THIRD DISTRICT.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as District Physician of the Third District for the year ending December 31, 1912.

Number of visits, white.....	1,050	
Number of visits, colored.....	2,392	
		<hr/>
Total number of visits.....		3,442
Number of white patients.....	340	
Number of colored patients	628	
		<hr/>
Total number of patients.....		968
Number of patients, male.....	331	
Number of patients, female.....	637	
		<hr/>
Total number of patients.....		968
Number of deaths, white.....	1	
Number of deaths, colored.....	13	
		<hr/>
Total number of deaths		14
Number of patients sent to the City Home.....	105	
On hand December 31, 1912.....	22	

Respectfully submitted,

J. F. CRANE,
District Physician.

REPORT OF DISTRICT PHYSICIAN, FOURTH DISTRICT.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as District Physician of the Fourth District for the year ending December 31, 1912.

Number of visits, white.....	523	
Number of visits, colored.....	1,638	
	<hr/>	
Total number of visits.....		2,161
Number of white patients	150	
Number of colored patients.....	451	
	<hr/>	
Total number of patients.....		601
Number of patients, male.....	250	
Number of patients, female.....	351	
	<hr/>	
Total number of patients.....		601
Number of deaths, white.....	0	
Number of deaths, colored.....	9	
	<hr/>	
Total number of deaths.....		9
Number of patients sent to the City Home.....	68	
On hand December 31, 1912.....	6	

Respectfully submitted,

T. E. STRATTON, M. D.,
District Physician.

REPORT OF DISTRICT PHYSICIAN, FIFTH DISTRICT.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as District Physician of the Fifth District for the year ending December 31, 1912.

Number of visits, white.....	418	
Number of visits, colored	2,118	
		<hr/>
Total number of visits.....		2,536
Number of white patients.....	234	
Number of colored patients	1,436	
		<hr/>
Total number of patients.....		1,670
Number of patients, male	613	
Number of patients, female.....	1,057	
		<hr/>
Total number of patients.....		1,670
Number of deaths, white.....	1	
Number of deaths, colored.....	11	
		<hr/>
Total number of deaths.....		12
Number of patients sent to the City Home.....	37	
On hand December 31, 1912.....	19	

Respectfully submitted,

L. D. BATKINS, M. D.,
District Physician.

REPORT OF DISTRICT PHYSICIAN, FIFTH DISTRICT.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as District Physician of the Sixth District for the year ending December 31, 1912.

Number of visits, white	2,179	
Number of visits, colored.....	106	
	<hr/>	
Total number of visits.....		2,285
Number of white patients	957	
Number of colored patients.....	76	
	<hr/>	
Total number of patients		1,033
Number of patients, male.....	322	
Number of patients, female.....	711	
	<hr/>	
Total number of patients		1,033
Number of deaths, white.....	1	
Number of deaths, colored.....	1	
	<hr/>	
Total number of deaths.....		2
Number of patients sent to the City Home.....	37	
On hand December 31, 1912.....	7	

Respectfully submitted,

JULIAN W. SLOAN, M. D.,

District Physician.

REPORT OF DISTRICT PHYSICIAN, SEVENTH DISTRICT.

DR. H. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as District Physician of the Seventh District for the year ending December 31, 1912.

Number of visits, white	1,664	
Number of visits, colored	368	
Total number of visits.....		2,032
Number of white patients.....	702	
Number of colored patients.....	256	
Total number of patients.....		958
Number of patients, male.....	279	
Number of patients, female.....	679	
Total number of patients.....		958
Number of deaths, white.....	2	
Number of deaths, colored.....	2	
Total number of deaths.....		4
Number of patients sent to the City Home.....	18	
On hand December 31, 1912.....	8	

Respectfully submitted,

E. T. RUCKER, M. D.,
District Physician.

REPORT OF CHIEF SANITARY OFFICER.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor herewith to submit to you my third annual report as Chief Sanitary Officer. This report incorporates the reports of five sanitary officers and also special work done by Mr. Urbach and Mr. Neblett, especially appointed inspectors.

As usual, our main efforts have been directed to the abolishing of dry closets, wherever this was made possible by sewer extensions. Public sewers have been extended mostly in the western section of the city, where sewer extensions were badly needed. I can report that after all house connections are made which have been ordered, there will be still remaining 500 dry closets west of Shockoe Creek. Five years ago there were 3,000 privies in this section of the city. It is to be hoped that public sewers will be extended also in the large portion of territory east of Shockoe Creek where at least 1,000 dry closets are now located. These dry closets are located on most of this property near shallow wells which supply drinking water to more than 5,000 people. Although sewer extensions were not provided for in the above mentioned section, every possible effort was exercised by me in having all privies repaired or built new to conform with the rules of the Richmond Health Department. There were 2,000 dry closets made as water tight and fly tight as possible before the summer months.

The 1st of May I personally began the work of stable inspection—first, with the purpose of lessening the number of house flies, and second, to secure the abatement of many intolerable nuisances. The floors in nearly all stables were found insanitary and fearfully drained. In many cases the conditions found in connection with this class of property were disgraceful. I have had 110 concrete floors laid, with proper drainage, and contracts have been given for 3 new sanitary and up-to-date stables to take the places of the old, unfit ones.

No mistake was made in the selection of Mr. Howard Urbach and Mr. Neblett, both of whom showed a marked interest in the work which was allotted to them. I commend them to you most highly for the untiring devotion manifested in discharging their duties. These two inspectors were given a section to inspect from house to house, bounded by Leigh and Q streets, 26th and 32nd streets, inclusive, for the purpose of cleaning up and to lessen the excessive number of flies in this part of the city. Owners of stables were required to lay water tight floors in their stables in place of the old insanitary ones and to put all manure and litter from their stables into barrels. These receptacles were emptied beyond the city limits every sixth days. Almost immediately the number of flies was reduced, and before their second visit over this territory was completed, the house-fly was materially reduced in this section. These two inspectors were likewise given a section in the western part of the city and instructed to make a house-to-house canvass as was done in the east end. The same results were

secured in the latter section as were secured in the former. I have dwelt at some length on this subject because it shows the value of house-to-house inspection, and I feel sure that the house-fly could be greatly reduced in this city if the City Council will give us a force of sufficient number to put into effect the house-to-house canvass.

April 12, 1912 an ordinance was adopted creating officially the position of Chief Sanitary Officer. I was elected by the Board of Health to fill this position, thus causing a vacancy in the Sanitary Department. Mr. John T. Gill was elected by the Board to fill this vacancy. Mr. Gill was once before connected with this office, and during his incumbency his work was in every way satisfactory. He has shown the same energy since being re-elected.

Permit me to say that I am sure that we have a proper and efficient arrangement in the newly constructed carts for the disposal of night soil in sewer manholes. These carts have been emptied in the public manholes over sewers, and there was no nuisance caused at the time during the emptying of same, and there was no evidence of a nuisance after the carts were thoroughly emptied and thoroughly washed by the fire hose.

In conclusion, I invite your careful consideration of the reports of each of the sanitary officers. Without exception they have shown faithfulness and courage when called for under adverse circumstances, while our reports show a wonderful amount of work done in connection with sewer extensions and stable work, and also a great deal of house-to-house inspection. We have by no means reached our climax, and I feel sure that this year our work will be of much higher order.

Below is a tabular report of work done during 1912:

Summons served	213
Cases in Court.....	268
Old closets ordered repaired	1,756
New closets put in	772
Dry closets inspected	4,087
Dry closets ordered cleaned and destroyed.....	1,375
Closet boxes ordered in and houses repaired.....	2,029
Old stench traps repaired	376
New stench traps ordered	71
Old hydrants ordered repaired	543
New dry closets ordered	107
Sewer connections ordered.....	1,328
Sewers ordered repaired and cleaned	883
Water connections ordered	451
Rain conductors, gutters and roofs ordered repaired.....	170
Kitchen sinks ordered repaired	313
Visits for Plumbing Inspector.....	301
Water pipes ordered repaired.....	676
Yards inspected	9,594
Yards ordered cleaned	4,550
Vacant lots inspected and ordered cleaned	1,251

Areas inspected—ordered cleaned and drained.....	166
Cellars ordered cleaned and drained.....	151
Out-houses inspected and ordered cleaned.....	130
Dead animals ordered to be removed.....	173
Alleys inspected	276
Alleys ordered cleaned	299
Old wells inspected, ordered cleaned and repaired	200
Old wells condemned and ordered filled.....	417
Manure piles ordered removed and barrels ordered.....	389
No cause for complaint.....	581
Contagious disease cards put up.....	1,082
Original houses visited	15,282
Premises inspected and revisited	16,751
Agents, Owners and Plumbers visited.....	6,027
Miscellaneous visits and orders.....	1,212
City water ordered on premises.....	1,212
Culture stations visited	139
Birth certificates investigated	72
Catch basins ordered cleaned.....	319
Stables inspected	1,291
Stables ordered repaired	797
Garbage cans ordered	441
Number of dry closets destroyed.....	1,319
New houses built with dry closets (sewers not available).....	30
Net gain dry closets destroyed.....	1,289
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Total number of visits.....	39,618

In addition to my work as Chief Sanitary Officer, the following detail work was also done by me during 1912:

Summons served	1
Cases in Court	21
Old closets ordered repaired	225
New closets put in	81
Dry closets inspected	2,244
Dry closets ordered cleaned and destroyed.....	503
Closet boxes ordered in and houses repaired.....	1,804
Old stench traps repaired	15
New stench traps ordered in.....	2
Old hydrants ordered repaired	41
New dry closets ordered	23
Sewer connections ordered	142
Sewers ordered repaired and cleared	89
Water connections ordered	36
Rain conductors, gutters and roofs ordered repaired.....	12
Kitchen sinks ordered repaired.....	16
Visits for Plumbing Inspector	26
Water pipes ordered repaired	17

Yards inspected	635
Yards ordered cleaned	415
Vacant lots inspected and ordered cleaned.....	56
Areas inspected—ordered cleaned and drained.....	12
Cellars ordered cleaned and drained.....	21
Out-houses inspected and ordered cleaned.....	5
Dead animals ordered to be removed.....	9
Alleys inspected	21
Alleys ordered cleaned	18
Old wells inspected, ordered cleaned and repaired.....	2
Old wells condemned and ordered filled	90
Manure piles ordered removed and barrels ordered.....	97
No cause for complaint.....	16
Contagious disease cards put up.....	64
Original houses visited	3,428
Premises inspected and revisited.....	1,328
Agents, Owners and Plumbers visited.....	400
Miscellaneous visits and orders.....	129
City water ordered on premises.....	90
Culture stations visited	22
Birth certificates investigated	6
Catch basins ordered cleaned	14
Stables inspected	673
Stables ordered repaired	106
Total number of visits.....	6,608

Respectfully submitted,

W. T. TUCK,
Chief Sanitary Officer.

REPORT OF SANITARY OFFICER, FIRST DISTRICT.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as Sanitary Officer for the First District for the year ending December 31, 1912.

Summons served	39
Cases in Police Court.....	49
Old closets ordered repaired.....	379
Old closet houses ordered repaired.....	18
New closets put in.....	33
Dry closets inspected	307
Dry closets ordered cleaned or destroyed.....	286
Closet boxes ordered in or houses repaired.....	32
Old stench traps repaired.....	56
New stench traps ordered in.....	3
Old hydrants ordered repaired.....	110
New hydrants ordered in	12
Sewer connections ordered	161
Sewers ordered repaired	69
Sewers ordered unchoked.....	128
Water connections ordered	2
Rain conductors ordered repaired.....	42
Bath tubs ordered repaired	21
Kitchen sinks ordered repaired.....	78
Kitchen sinks ordered trapped.....	10
Water pipes ordered repaired.....	292
Yards inspected	1,530
Yards ordered cleaned	793
Dry closets built new	9
Vacant lots ordered cleaned.....	1
Vacant lots and streets with water on them.....	19
Areas ordered cleaned.....	2
Cellars ordered cleaned	4
Dead animals reported	18
Outhouses ordered cleaned	3
No cause for complaint	96
Alleys ordered cleaned	24
Old wells inspected and ordered cleaned or repaired.....	20
Old wells condemned and ordered filled.....	54
Manure piles ordered removed or boxes ordered.....	19
Leaky roofs ordered repaired	8
Contagious disease cards put up.....	190
Original houses visited	1,600
Premises inspected and revisited	3,270
Agents, Owners and Plumbers visited.....	1,330

Miscellaneous visits and orders.....	382
City water ordered on premises.....	218
Culture stations visited	68
Birth certificates investigated	5
Catch basins reported	29
Stables inspected	8
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Total number of visits made.....	6,593

Respectfully submitted,

W. A. CRUMP,
Sanitary Officer.

REPORT OF SANITARY OFFICER, FOURTH DISTRICT.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as Sanitary Officer for the Fourth District for the year ending December 31, 1912.

Summons served	32
Cases in Court	73
Old closets ordered repaired	118
New closets put in	90
Dry closets inspected	145
Dry closets ordered cleaned and destroyed.....	145
Closet boxes ordered in and houses repaired.....	28
Old stench traps repaired	41
New stench traps ordered in	35
Old hydrants ordered repaired	39
New dry closets ordered	24
Sewer connections ordered	576
Sewers ordered repaired and cleaned.....	83
Water connections ordered	16
Rain conductors, gutters and roofs ordered repaired.....	24
Kitchen sinks ordered repaired.....	41
Visits for Plumbing Inspector	90
Water pipes ordered repaired.....	41
Yards inspected	1,104
Yards ordered cleaned	583
Vacant lots inspected and ordered cleaned.....	19
Areas inspected—ordered cleaned and drained.....	22
Cellars ordered cleaned and drained.....	40
Out-houses inspected and ordered cleaned.....	34
Dead animals ordered to be removed.....	64
Alleys inspected	95
Alleys ordered cleaned	63
Old wells inspected, ordered cleaned and repaired	37
Old wells condemned and ordered filled.....	77
Manure piles ordered removed and barrels ordered.....	110
No cause for complaint	155
Contagious disease cards put up.....	372
Original houses visited.....	1,799
Premises inspected and revisited.....	2,955
Agents, Owners and Plumbers visited.....	1,246
Miscellaneous visits and orders	231
City water ordered on premises	266
Culture stations visited	42
Birth certificates investigated.....	17
Catch basins ordered cleaned.....	110

Stables inspected	127
Stables ordered repaired.....	73
Stables visited	1
	<hr/>
Total number of visits	8,034

Respectfully submitted,

W. H. MOSLEY,
Sanitary Officer.

REPORT OF SANITARY OFFICER, FIFTH DISTRICT.

DR. E. C. LEVY,

Chief Health Officer, Richmond, Va.

SIR:

I have the honor to submit to you my report as Sanitary Officer for the Fifth District for the year ending December 31, 1912.

Summons served	54
Cases in Court	45
Old closets ordered repaired	189
New closets put in	141
Dry closets inspected	1,163
Dry closets cleaned and destroyed.....	150
Closet boxes ordered in and houses repaired.....	134
Old stench traps repaired	79
New stench traps ordered in	8
Old hydrants ordered repaired	112
New hydrants ordered in.....	34
Sewer connections ordered.....	69
Sewers ordered repaired and cleaned	117
Sewers ordered unchoked and repaired.....	141
Water connections ordered	50
Rain conductors ordered repaired	85
Kitchen sinks ordered repaired	25
Kitchen sinks ordered trapped and visits for Plumbing Inspector..	93
Water pipes ordered repaired	213
Yards inspected and ordered filled.....	297
Yards ordered cleaned	339
Vacant lots inspected and dry closets ordered new.....	61
Vacant lots ordered cleaned	34
Areas inspected	1
Areas ordered cleaned	1
Cellars ordered cleaned	7
Out-houses inspected and dead animals reported.....	78
Out-houses ordered cleaned	110
Alleys inspected, no cause for complaint.....	79
Alleys ordered cleaned and repaired.....	29
Old wells inspected	60
Old wells condemned and ordered filled.....	77
Manure piles ordered removed and boxes ordered.....	115
Leaky roofs ordered repaired	24
Contagious disease cards put up	34
Original houses visited	3,478
Premises inspected and revisited.....	1,919
Agents, Owners and Plumbers visited.....	433
Miscellaneous visits and orders	122
City water ordered on premises.....	225

Culture station visited	33
Birth certificates investigated	8
Stables inspected and repaired	303
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Total number of visits made.....	6,892

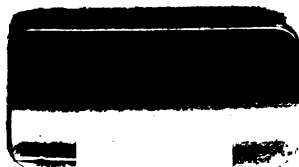
Respectfully submitted,

THOS. W. MITCHELL,
Sanitary Officer.

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